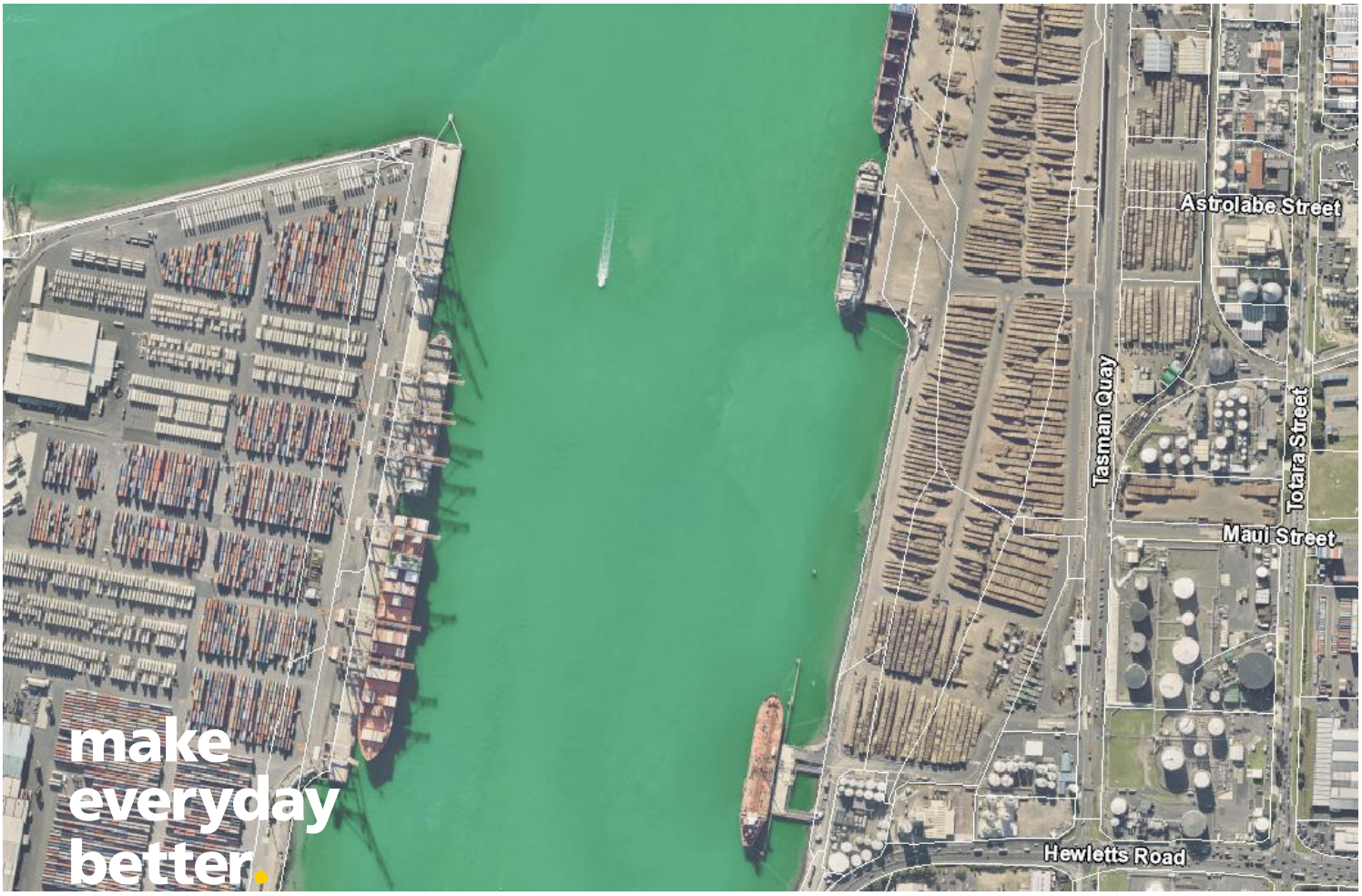
Combined Application Report RM19-0663

Prepared for Genera
Prepared by Beca Limited

27 May 2022



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Revision History

Revision Nº	Prepared By	Description	Date
	Keith Frentz	First Draft of Combined Document for review	18/05/2022
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Document Acceptance

Action	Name	Signed	Date
Prepared by	Keith Frentz		
Reviewed by	Chris Moore		14 June 2022
Approved by			14 June 2022
on behalf of	Beca Limited		

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Executive Summary

Genera applied to renew its existing Resource Consent RC62719 to discharge contaminants to air from the Port of Tauranga in October 2019. Since that date the EPA has issued its decision on a reassessment of the use of MB in New Zealand and also approved the use of EDN in New Zealand. Genera do not currently use EDN but include it in this consent as it provides another fumigant that may be used to replace MB in the future thus reducing the use of Ozone Depleting Gases.

These decisions have had a significant impact on Genera's operations at the Port of Tauranga and it is considered appropriate to bring together a description of those changes and, where relevant, changes to this application.

In our opinion the changes remain within the scope of the application because the substance of the application remains as it was originally applied for including MB, Phosphine and EDN and the effects of the changes are less than were previously assessed as a result of the controls in the EPA decisions and the consequential changes to Genera's operating procedures.

One of the consequences of the EPA decision on MB and the changes that have been implemented is that the activity is now considered to be a discretionary activity under Rule AQ R20. The proposal remains consistent with the relevant objectives and policies of the Bay of Plenty RPS, RAP and the RNRP and meets the recapture requirements for MB of the EPA Decision HSR001635 for 2031 which exceeds the requirements of the RAP.

The potential adverse effects of the discharges to air are identified as relating to ozone depletion (for MB), health effects and cultural effects.

The potential adverse effects of these activities and proposed mitigation measures have been addressed in this AEE and include:

- Effects on the ozone layer of MB – mitigated through the implementation of recapture technology that achieve the control measures of HSR001635 for 2031, and the inclusion in this application of other non-ozone depleting fumigants;
- Effects on the health of occupational and non-occupational bystanders – mitigated through active monitoring to ensure the continued adherence to the established TELs and WES criteria and compliance with HSR001635, HSR101529 and the requirements of WorkSafe NZ in relation to Phosphine;
- Effects on the cultural role of the Whareroa Marae, the associated Iwi and hapu and the health and wellbeing of their people – mitigated through notification and direct communication with Whareroa Marae before ship hold fumigations take place and schedule ship hold fumigations to consider access to kai moana beds in Te Awanui for food gathering for any significant cultural events at the marae including any tangi

In our opinion it is most effective and efficient that the consent adopt the controls of the EPA Decisions and to provide for joint reporting. It is noted that the EPA Decision on EDN effectively does this by requiring fumigators to report to the Territorial Authority as a specific control. This approach avoids duplication of reporting obligations while maintaining the monitoring and recording requirements required to meet the reporting obligations.

In summary, adverse effects associated with Genera's discharge activities can be managed by appropriate control measures on site with continued active environmental monitoring and adaptation if necessary. Implementation of the measures proposed in the suggested conditions will ensure that any adverse effects associated with discharge activities will be no more than minor.

There will also be considerable positive effects of continued exportation of forestry and other goods that are required to be fumigated and protection of the New Zealand international border from biosecurity risks.

1 Introduction

1.1 Background and Purpose of this Report

This report has been prepared to bring together the application dated 29 October 2019, the addendum to the application dated 8 October 2021 (prepared following the Environmental Protection Authority (EPA) Decision on the Reassessment of Methyl Bromide (MB) (HSR001635)) and the responses to information requests pursuant to s92 of the Resource Management Act (RMA).

This report is not a summary document and it is intended that it may be relied on as a complete application document reflecting the changes that have taken place over the period from October 2019. There have been unusual circumstances that have prolonged the application, not least being that the EPA was asked to reassess the use of MB in New Zealand and it was agreed between the Consent applicant and the Consent Authority that it would be appropriate to defer hearing this consent application until the EPA had completed its processes and provided a decision. As a consequence of the EPA decision it is now much clearer how and where MB may be used and the obligations of the fumigators using MB. It is relevant to this application that the EPA did not ban the use of MB in New Zealand and the changes to this application reflect the conditions and requirements of the EPA decision.

In addition, the EPA has also approved an application to import or manufacture Ethanedinitrile (EDN), as a fumigant for timber and logs, which is also part of this application.

1.2 Overview to the Application

Genera Limited (Genera) operates a biosecurity and fumigation facility located at the Port of Tauranga (Port), Tauranga. Genera holds an existing discharge of fumigants to air discharge permit (Resource Consent 62719) for the discharge of Methyl Bromide (MB) and Phosphine at the Port which was due to expire on 30 April 2020. In order for Genera to continue to operate beyond the expiry date of the consent without the need for express approval from Bay of Plenty Regional Council (BOPRC) to do so, Genera had to apply to renew the consent on or before 31 October 2019 (s124 Resource Management Act (RMA)). This application was made to BOPRC on 31 October 2019 and Genera has continued to operate in accordance with the conditions of that consent (and subsequently in accordance with the conditions of HSR001635 where they are more onerous), since that date. A copy of Resource Consent 62719 is provided in Appendix A.

The currently consented fumigant discharges to air from Genera operations are MB and Phosphine which are used to fumigate logs, breakbulk cargo and containers that pass through the Port for quarantine and pre-shipment (QPS) treatment (both export and import).

Genera proposes that the conditions of Resource Consent 62719 are adopted in modified form in the new consent to reflect the EPA Decision (HSR001635) and the EPA approved use of EDN (HSR101529).

Genera has commissioned Beca Limited (Beca) to prepare an Assessment of Environmental Effects (AEE) for the discharge of fumigants to air from the Port.

1.3 Background to Existing Consents

Genera currently holds two consents to discharge MB and Phosphine to air from the BOPRC at the Port and within the wider Bay of Plenty Region. This application is only in relation to fumigation activities at the Port of Tauranga.

Resource Consent 62719.0.01-DC (RC62719) applies to fumigation operations at the Port and at 9 and 11 Maru Street (Genera's offices) and was granted by the BOPRC to Genera on 24 May 2005. RC62719 permits the discharge of fumigants, namely MB and Phosphine, to air subject to conditions. In particular, it is subject to condition 5C.1 which sets step-targets for achieving an increasing proportion of fumigations using recapture technology over time. These have now been superceded by the EPA Decision (HSR001635) as they are more onerous than condition 5C.1 and the other conditions of RC62719 and Genera continues to comply with the conditions of HSR001635.

1.4 Summary of Application Details

Table 1 provides a summary of the application for resource consent. A site plan is provided in Figure 1. Changes from the application dated 29 October 2019 are shown in red font struck through where elements have been deleted.

Table 1 Consent Application Summary

Category	Details
Applicant	Genera Ltd
Purpose of consent sought	Discharge fumigants to air for the purpose of fumigation for quarantine and export and import requirements including; • Logs under sheets • Logs in ships' holds • Timber under sheets • Cargo in sheds and on-wharf under sheets • Shipping containers and contents • Cargo in ships holds ~~when directed by the Ministry of Primary Industries in relation to a biosecurity risk.~~
Fumigants covered by this application	Methyl Bromide, Phosphine, EDN
Consent duration sought	10 years
Site Address	At the Port of Tauranga Mount Maunganui wharves and Sulphur Point wharves including the Coastal Marine Area (CMA)
Map Reference	NZMS 260 U14: 9232-8833
Legal Descriptions	**Mount Maunganui wharves** Lot 2 DPS 70440 SEC 18 64 65 110 112 120 PT SEC 139 PT LOT 94 PT 96 SEC 1 SO 58575 SECS 1 2 SO 58574 LOT 1 SO 58413 LOT 2 DPS 13237 LOT 1 PT 2 DPS 59388 SEC 49 57 124 57 124 125 LOT 1 DPS 71578 LOT 1 PT LOT 2 DPS 70440 LOT 1 DPS 69395 LOTS 2-4 DPS 77433

Category	Details
	LOTS 1-3 DPS 19876 SEC PT 1 PT 2 SO 58227 RCL 19 PT SEC 137 SEC 78 LOT 5 DPS 77433 LOT 1 DPS 87230 PT LOT 2 DPS 59388 PT SEC 25 BLK VII SEC 23 PT 25 SEC 1 SO 58567 & PT SECTIONS 1 & 2 SO 58277 SEC 103 BLK VII TAURANGA SD SEC 54 BLK VII TAURANGA S D & LOTS 1 & 2 DP 389860 & SEC 107 BLK VII TAURANGA SD & SEC 5 SO 439181 **Sulphur Point wharves** PT LOT 1 DPS 48736 and Crown Land (seabed)

Cargo in Ships' holds has been amended as the EPA Decision on MB (HSR001635) prohibits fumigation of Ships' holds with MB from January 2023 and Genera have ceased this aspect of their operations. The EPA decision on EDN (HSR101529) also does not permit the use of EDN in Ships' holds. Ships' holds will continue to be fumigated with Phosphine.

Fumigations in ships' holds will predominantly be of logs by Phosphine. This is a significant change to the circumstances at the time the previous consent was granted when the use of Phosphine was not usual. Today it makes up the largest part of Genera's fumigation activities at the Port of Tauranga.

In addition to the treatment of logs there may also be occasions when other cargo such as grain or machinery is treated by Phosphine. Directions from the Ministry of Primary Industry (MPI) where there is a biosecurity risk can be implemented through the Biosecurity Act if required.

1.5 Definitions

These definitions have been amended or added to reflect the EPA Decision (HSR001635).

Active monitoring

means measuring gas concentrations at the locations identified in the FMP in real-time either by manual or automated systems

Adaptive management monitoring

means responding to real-time active monitoring by adapting the release of gas during the ventilation procedure by either decreasing or increasing the quantity of gas being ventilated or altering the size/shape of the Risk Area.

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 from which non-occupational bystanders

(the public) are excluded. In relation to this consent it shall not extend beyond the landward boundary of the Port of Tauranga or 50m seaward of any ship berthed at the Port of Tauranga.

Community facilities

means land, buildings and structures:

a) utilised for activities such as community use, deliberation, entertainment, recreation or leisure undertaken for purposes other than principally for commercial gain; or

b) operated by the Council as publicly funded (partially or wholly), run or owned activities.

Community facilities includes:

a) Citizens advice bureaus;

b) Council administration offices;

c) Libraries, museums and art galleries;

d) Legal aid offices;

e) Plunket rooms and rooms where information, counselling advice or similar assistance conducive to welfare is provided;

f) Public recreational facilities and activities/minor public recreational facilities and activities;

g) Clubrooms;

h) Community halls, community centres, community services, community theatres, community meeting rooms and community support centres (including those owned and managed by Council Controlled Organisations);

i) Societal lodges;

j) Public swimming pools (including those managed as Council Controlled Organisations);

k) Places of worship;

l) Ancillary fund-raising activities to community facilities, provided they are temporary

Ethanedinitrile (EDN):

$(CN)_2$ (also known as cyanogen) is a colourless, toxic gas with a pungent odour and is a phytosanitary fumigant suitable for treating forest products. Research funded by the New Zealand Forest Industry identifies EDN as a suitable phytosanitary fumigant for exported, imported and domestic logs and forest products.

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.

ISPM15:

International Standards For Phytosanitary Measures No. 15 (ISPM 15) is an International Phytosanitary Measure developed by the International Plant Protection Convention (IPPC) that directly addresses the need to treat wood materials of a thickness greater than 6mm, used to ship products between countries.

Methyl Bromide:

Is a colourless, odourless gas and is listed as an ozone depleting gas (ODG). It is a naturally produced gas (1-2 billion kgs/yr) in oceans, salt marshes etc.

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.

Phosphine (PH_3)**:**

Is a colourless, flammable, and explosive gas at ambient temperature that has the odour of garlic or decaying fish. Small amounts occur naturally from the breakdown of organic matter. Phosphine is widely used as a rapid acting fumigant that does not leave residues on the stored product as an alternative to MB.

Recapture Technology:

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

Risk area / Safe Work Zone

means an area around the fumigation enclosure that for the duration of the fumigation prior to ventilation is under the control of the fumigator. No persons other than authorised fumigator staff wearing appropriate PPE may enter the risk area. The two terms can be used interchangeably.

Tolerable Exposure Level (TEL)**:**

A value that a person may be exposed to during a lifetime without suffering adverse health effects. This value corresponds to the acute (1 hour) TEL for MB of 1ppm (1000ppb) (3.9mg/m^3), which is appropriate for an instantaneous reading.

Worker Exposure Standard (WES)**:**

A measure not to be exceeded outside the boundary of the Risk Area being a time-weighted 8-hour average concentration for MB of 5ppm (19mg/m^3).

1.6 Limitations

Beca Ltd has prepared this report for Genera Ltd. Beca has relied upon the information provided by Genera in completing this document. Unless otherwise stated, Beca has not sought to independently verify the information as provided. This document is, therefore based upon the accuracy and completeness of the information provided and Beca cannot be held responsible for any misrepresentations, incompleteness, or inaccuracies provided within that information. Should any other information become available, this report will need to be reviewed accordingly.

2 Description of Proposed Activity

2.1 Overview of Genera Operations

2.1.1 Genera

Genera was established in 1975 by Mark Greenwood who was awarded an Order of Merit in 2016 for services to biosecurity. The company is 100% New Zealand family owned and has become Australasia's leading biosecurity treatment provider.

Genera is MPI accredited and is a Member of the Pest Management Association of NZ (PMANZ). Genera is New Zealand's sole member of the International Maritime Log Fumigation Organisation (IMFO) and accredited for ISPM15 and founding member of the Stakeholders in Methyl Bromide Reduction (STIMBR) group.

Genera provides biosecurity solutions in difficult situations and is considered to have pioneering expertise in In-transit bulk phosphine fumigation of grain and logs. Genera has developed a world leading gas-liquid MB recapture system suitable for scrubbing fumigant gases from bulk fumigations that is capable of recycling. Since the EPA Decision (HSR001635) Genera has been researching the adoption of this technology to recycle MB from activated carbon recapture technology.

Genera provides quarantine treatment of imported cars, trucks, machinery, shipping containers using chemical free BioVaporTM Heat Treatment System and provides industry-leading pest management solutions. Genera has a dedicated research and development (R&D) team of scientists working on fumigant recapture and alternative treatment technology.

2.1.2 Exports

Genera is considered an important part of 'NZ Inc' by enabling trade for export. Trade for export demands biosecurity (i.e. phytosanitary treatments) which includes quarantine procedures such as fumigations. Approximately $6.4 billion in forestry products were exported over YE 6/18, and 48% of the forestry products went to China. India is also a key export market.

India requires log and timber shipments to be treated with MB before they leave New Zealand while China requires log and timber shipments to be treated with MB before they leave New Zealand, or with Phosphine (in-hold) during transit, or it will accept the importation of de-barked logs. Over 50% of New Zealand's log exports are required to be treated by MB or Phosphine before or during shipping.

2.1.3 Biosecurity risk and imports

Genera's operations also help to protect New Zealand's borders from contaminated imports. Such imported goods include grain, used cars and other machinery, household goods and packaging material. Biosecurity risks associated with these imported goods include:

- Queensland fruit fly (each fly costs NZ $1million in response).
- Brown marmorated stink bug.
- Grain infestations.
- Myrtle rust, Tomato-potato psyllids, etc
- Foot and Mouth disease.
- Bark- and wood-boring insects and fungi. In the US, 25 new species of exotic bark- and wood-boring insects were found between 1958 and 2005.

2.2 Existing Resource Consent

2.2.1 RC62719 - Port of Tauranga Fumigations

The existing resource consent RC62719 (refer Appendix A) authorises the discharge of fumigants (MB and Phosphine) to air for the purpose of fumigation for quarantine and export and import requirements at the Port. Such fumigations are limited to the following, subject to conditions:

- Logs under sheets
- Logs in ships' holds
- Timber under sheets
- Cargo in sheds and on-wharf under sheets
- Shipping containers and contents
- Cargo in ships holds when directed by the Ministry of Primary Industries in response to a biosecurity risk.

Genera is not proposing to increase the number of discharge activities from those currently permitted by the existing resource consent. However, Genera is seeking a number of changes to the existing consent conditions which better reflect current resource management practice, including the conditions of the EPA Decision (HSR001635), as well as international industry standards and operations associated with fumigation.

2.3 Description of the Discharges to Air

Genera primarily uses MB and Phosphine for fumigations. The following provides a description of the fumigants used.

2.3.1 Methyl Bromide

MB is a naturally produced gas (1-2 billion kgs/yr) in oceans, salt marshes etc. It is a colourless, odourless gas and is listed as an ozone depleting gas (ODG).

MB is subject to the Montreal Protocol UN Convention for the reduction of ODGs of which New Zealand is a signatory. However, and importantly for the context of this application, MB is allowed for biosecurity use as long as there is a continued reduction in its use and alternatives are used where possible.

MB is a hazardous substance under HASNO. MB is subject to the controls imposed in the EPA's reassessment determination HSR001635, dated 11 August 2021.

HSR001635 has a number of conditions that must be complied with. Genera's operations have been amended to comply with these conditions including no longer undertaking fumigations in Ships' holds using MB. HSR001635 and Genera's response to its requirements are described in Section 3.

2.3.2 Phosphine

Genera has developed the use of Phosphine (PH_3) for fumigating logs and timber for export to China. The use of Phosphine has significantly reduced the use of MB in New Zealand. However, India does not accept Phosphine fumigated logs and will only accept MB fumigated logs.

Phosphine is a colourless, flammable, and explosive gas at ambient temperature that has the odour of garlic or decaying fish. Small amounts occur naturally from the breakdown of organic matter. It is slightly soluble in water. Importantly, Phosphine is not an ODG and is therefore not subject to the Montreal Protocol.

Phosphine canisters are loaded into ship holds while cargo such as logs and timber are being loaded. The holds are then sealed and Phosphine fumigation is activated within 4 hours of the ship disembarking. The holds are re-charged after about a week of transit and then ventilated after fumigation while the ship is in-transit (approximately 2 weeks for shipping to China) outside of New Zealand's territorial waters.

Phosphine may also be used to fumigate product such as grain or flour at the wharf.

Consent is required in the event of residual or accidental discharge to air while phosphine is being used on the wharf, at berth or within territorial waters.

2.3.3 Ethanedinitrile (EDN)

The fumigant EDN has recently (April 2022) been assessed and approved[1] by the EPA under HASNO for its suitability as a phytosanitary fumigant for logs and timber. EDN is not an ODG and is proposed to be a suitable alternative to the use of MB.

EDN $(CN)_2$ (also known as cyanogen) is a colourless, toxic gas with a pungent odour and is a phytosanitary fumigant suitable for treating forest products. Research funded by the New Zealand Forest Industry identifies EDN as a suitable phytosanitary fumigant for exported, imported and domestic logs and forest products.

The conditions of HSR101529 are described further in Section 4.

[1] https://www.epa.govt.nz/assets/FileAPI/hsno-ar/HSR101529/HSR101529_Final_Decision.pdf

3 EPA Decision on Methyl Bromide (HSR001635)

The EPA Decision on MB (Appendix A) provided three amendments to the approval of the use of MB.

1. To amend the approval for MB to correct a minor or technical error (approved 19 November, 2019).
2. To change the definition of recapture and the associated use controls (approved 11 August, 2021).
3. To amend the approval for MB to change the hazard classifications to Globally Harmonised System (GHS, approved 19 August, 2021).

It is our understanding that parts 1 and 3 of the EPA Decision are administrative changes to correct minor and technical error(s) and to bring New Zealand in line with the international Globally Harmonised System (GHS) of classifying hazardous chemicals created by the United Nations. Beyond an administrative standpoint these parts of the EPA Decision do not affect the implementation of fumigating activities at the Port of Tauranga or this consent application.

3.1 EPA Decision Controls

In summary, the second part of the EPA Decision imposes, or re-imposes, the following controls in relation to QPS uses of MB:

1. The Tolerable Exposure Limits (TEL) remain unchanged.
2. The definitions used in the approval decision have been reviewed and refined. The most notable change has been the new definition of 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 (Dr Chris Hill, General Manager – Hazardous and New Organisms), has further clarified this definition by email to the applicant in response to a query regarding 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 concentration after recapture. Therefore, the recording control requires these measurements to be recorded. This was based on around 50% of methyl bromide absorbing to logs - information that was provided by the applicant and Genera."
3. The new controls imposed the following:
   i. From 1 January 2023, no person may apply methyl bromide for the fumigation of ship's holds.
   ii. From 1 January 2022, a Person Conducting a Business Undertaking (PCBU) with management or control of quarantine or pre-shipment fumigation using methyl bromide 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—

      (a) the relevant territorial authority; and

      (b) neighbouring marae and neighbouring community facilities.

   iii. The use of recapture technology:

      (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—

         (a) recapture technology is used; and

(b) the recapture technology used is—

(i) capable of achieving the performance criteria for the relevant circumstance of use specified in Table A or Table B; and

(ii) used in a manner that will achieve the specified performance criteria for the relevant circumstance of use.

(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—

(a) the event recapture proportion is achieved or exceeded; and

(b) the annual average recapture performance is achieved or exceeded.

(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.

iv. Dosing to concentration

(1) For fumigation under sheets—

(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

(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.

(2) For fumigation of containers—

(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

(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.

v. Ventilation

(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.

(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.

vi. Requirement to keep records

There is an extensive prescribed list of records to be kept (Appendix A)

vii. Notification of TEL_{air} exceedance

There continue to be requirements to notify the territorial authority as soon as practicable and within 24 hours of exceedances of the 1-hour TEL $_{air}$ and the 24-hour TEL $_{air}$ values for methyl bromide.

viii. Annual reporting

There continue to be requirements to provide an annual report to the EPA.

ix. Buffer Zones

(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.

(2) For fumigation of containers of up to 77 m^3 in volume the PCBU must set a buffer zone for each fumigation that is equal to or more than 10 m.

(3) For fumigation of containers equal to or greater than 77 m^3 in volume the PCBU must set a buffer zone for each fumigation that is equal to or more than 25 m.

(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.

(5) The PCBU must ensure that—

(a) no member of the public is in the buffer zone during the buffer zone period; and

(b) the buffer zone is kept under observation; and

(c) the buffer zone is sufficiently large to ensure that the TEL $_{air}$ for methyl bromide is not exceeded beyond the boundary of the buffer zone.

The following tables from the EPA decision are reproduced for reference. Definitions are provided in Section 1.5.

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 (%)
1 January 2022	50	30	55
1 January 2023	75	40	60
1 January 2025	100	50	65
1 January 2027	100	60	75
1 January 2029	100	70	85
1 January 2031	100	80	95
1 January 2033	100	90	99
1 January 2035	100	99	99

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

Minimum recapture (%)	Minimum buffer zone: dose rate ≤ 40 g/m3 (m)	Minimum buffer zone: 40 g/m3 < dose rate ≤ 72 g/m3 (m)	Minimum buffer zone: 72 g/m3 < dose rate ≤ 120 g/m3 (m)
No recapture	210	515	700
30	155	380	520
40	135	335	455
50	120	290	395
60	100	245	335
70	80	200	270
80	65	155	210
90	50	110	150
99	50	70	95

3.2 Genera's implementation of the controls

3.2.1 General

1. Genera will not commence ventilation when windspeeds are less than 2 m/s (item v.(1) above) and will undertake best endeavours (such as by checking forecast weather conditions prior to ventilation) to ensure that windspeed is not less than 2 m/s throughout the operation.
2. Genera no longer undertakes in-hold fumigation with methyl bromide (items v.(2), ix.(4) above).
3. Genera is required to notify the Territorial Authority, neighbouring marae and neighbouring community facilities not less than 24 hours before the start of fumigation event.

   Genera will therefore notify:

   - The Bay of Plenty Regional Council as the consent authority
   - Tauranga City Council (TCC) as the territorial authority;
   - Whareroa Marae. While the marae is not adjacent to the Port boundary Genera values its relationship with the marae and mana whenua of the rohe in which it operates and will continue to provide this information to them.

   Genera will also notify other neighbouring organisations defined as community facilities (see section 1.5).

   In the event that there are other community facilities adjacent to the Port boundary that are not administered or operated by TCC they will also be notified where Genera is advised of their presence.

3.2.2 Fumigation of containers

The buffer distances for containers set in the EPA's HRC08002 decision in 2010 on methyl bromide controls (EPA 2010 Decision) are reimposed in the most recent EPA Decision and are part of Genera's current operating procedures. No change is proposed, or is necessary, to comply with the EPA Decision on buffer zones (items ix.(2) & (3), Section 3.1 above) .

Table A requires that minimum recapture from containers achieves 80% efficiency from 1 January 2023 and increased efficiency beyond that.

Typically, a container of 77m^3 in volume would be dosed with approximately 3kg of MB of which, on average, 1.5kg would be absorbed (assuming a mix of soft and hard material in the contents of the container). If the headspace within the container is assumed to be 10% of the volume of the container the concentration before recapture commences is 1.5kg/7.7m^3 or 195g/m^3. The concentration at the end of recapture from 1 January 2023 (minimum recapture of 80%) must therefore not exceed 39g/m^3, which is approximately equivalent to 39 parts per million (ppm). From 1 January 2027 (minimum recapture of 90%) the concentration at the end of recapture must not exceed 19.5g/m^3, which is approximately equivalent to 19.5 ppm and From 1 January 2031 (minimum recapture of 99%) the concentration at the end of recapture must not exceed 1.95/m^3, which is approximately equivalent to 1.95 ppm.

3.2.3 Fumigation under sheets

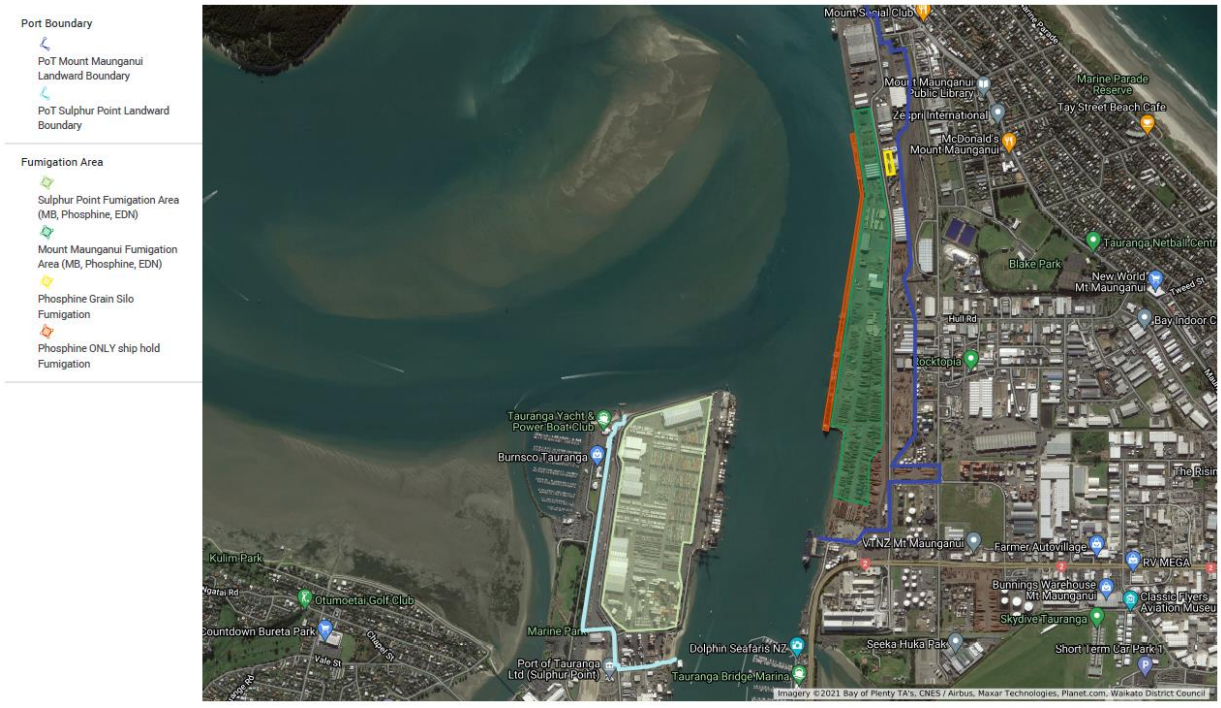
Tables B and C are used to determine the performance criteria for the recapture technology used and the buffer distances that apply to each job.

On 1 January 2023 the event recapture proportion is to be a minimum of 75% of all jobs fumigated. Genera is currently achieving this proportion. Minimum recapture is to be 40% and annual average recapture performance is to be 60%.

Based on a minimum recapture efficiency of 40% the buffer distances range from 135m for dose rates of less than, or equal to, 40g/m^3, to 335m for dose rates between 40 and 72g/m^3 and 455m for dose rates between 72 and 120g/m^3.

The buffer distances required vary depending on whether there are any ships berthed adjacent to the fumigation area shown in the Fumigation Plan (FP), Figure 1 below, the dose rate and the recapture performance. Figure 1 shows an overall fumigation area which would be able to be occupied and used for fumigation as recapture performance improves and adjusting for ships berthed at the wharves.

Figure 1: Fumigation Plan areas for the Port of Tauranga



The FP outlines areas relevant to all fumigation activities using Phosphine MB and EDN. The areas specific to each fumigant are determined through the controls specified in the relevant EPA Decision or other conditions and requirements. Minimum buffer distances for MB in accordance with Table C of the EPA Decision are able to be achieved and are required to be complied with.

There is very little space available on the Port to undertake MB fumigation under sheets for dose rates of more than 40g/m^3. At present the main export market for raw logs is China which requires that logs must either be treated by phosphine, debarked or by MB at a dose rate of 80g/m^3 for at least 16 hours at log and ambient temperatures above 15˚C or at 120g/m^3 for at least 16 hours at log and ambient temperatures between 5˚C to 15˚C. On this basis a minimum recapture rate of 90% would need to be achieved if logs to China are to be fumigated under sheets using MB at the Port of Tauranga.

India requires raw logs to be either heat treated or treated by MB at the following rates:

- 48 g/m^3 at 21°or above for 24 hours
- 56 g/m^3 at 16-20° C for 24 hours
- 64 g/m^3 at 11-15°C for 24 hours
- 72 g/m^3 at 10-11° C for 24 hours

On this basis a minimum recapture rate of 80% would need to be achieved if logs to India are to be fumigated under sheets using MB at the Port of Tauranga.

MB treatment under sheets is limited to circumstances where the controls of the EPA Decision permit. If Genera is not able to achieve these minimum levels of recapture in its processes, they would not undertake jobs that require these levels of dose rate.

At present there are talks being undertaken between China and the New Zealand Ministry of Foreign Affairs and Trade to see if the prescribed rates can be reduced to 40g/m^3.

3.2.4 Summary of Implementation of Controls

In summary:

1. Genera will undertake its best endeavours to ensure that no ventilation of MB shall occur when wind speed is less than 2 m/s. Best endeavours may include consulting a reliable weather forecast prior to ventilation as well as recording windspeed at the site of the fumigation event recognizing that site specific circumstances may occur. Weather prediction is not an accurate science and despite best endeavours being undertaken wind conditions may change during the period of a ventilation.
2. Genera will not fumigate MB in ship holds unless required to undertake it as an emergency biodiversity treatment directed by MPI or other statutory authority.
3. Genera will operate within the Port of Tauranga Mount Maunganui wharves for the fumigation of material under sheets with a minimum buffer zone in accordance with Table C of the EPA Decision.
4. Genera will operate within the Port of Tauranga Sulphur Point container terminal, in accordance with the EPA Decision, with a minimum buffer zone of 25m for containers over 77m^3 in volume and 10m for containers less than 77m^3 in volume.

5. Before a fumigation event Genera will notify.
    - The Bay of Plenty Regional Council
    - The Tauranga City Council
    - The Whareroa Marae
    - Other organisations meeting the definition of “community facility” adjacent to the Port boundary where Genera is advised of their presence.

4 EDN and Other Fumigants

4.1 The EPA Decision on EDN

The EPA has now approved the use of EDN as a phytosanitary treatment for raw logs and timber under sheets or in containers (HSR101529).

In its decision the Decision-making Committee (the Committee) stated the following:

> *"After the first part of the hearing in 2018, the Decision-making Committee (the Committee) concluded that further consideration of the application under the HSNO Act could not proceed until WorkSafe, the agency responsible for overseeing the Health and Safety at Work Act 2015 (HSW), completed a parallel process of assessment of the risks of EDN to workers. WorkSafe completed the draft safe work instruments (SWIs) in December 2020, enabling resumption of the assessment under the HSNO Act. EDN is the first such application considered by the EPA at the intersection of these two separate statutory regulatory processes, and this has undoubtedly contributed to the extended timeline of the application process. At the same time, the Committee considered the processes to be complementary; WorkSafe's draft SWIs formed a baseline from which to assess residual risks to the public and the environment.*
>
> *We have approved the application to import or manufacture EDN for release as a phytosanitary treatment for logs or timber for export, though the HSNO approval will only take effect at the same time as the SWIs. EDN fumigation performed under a sheet or in a shipping container is permitted but, as the Committee did not have sufficient information to assess risk in ship's holds this use is not permitted."*

The EPA Decision approved EDN for import or manufacture under section 29 of the Act with the prescribed and additional controls listed in Appendix A, in line with the requirements of the SWI(s) prepared by WorkSafe NZ.

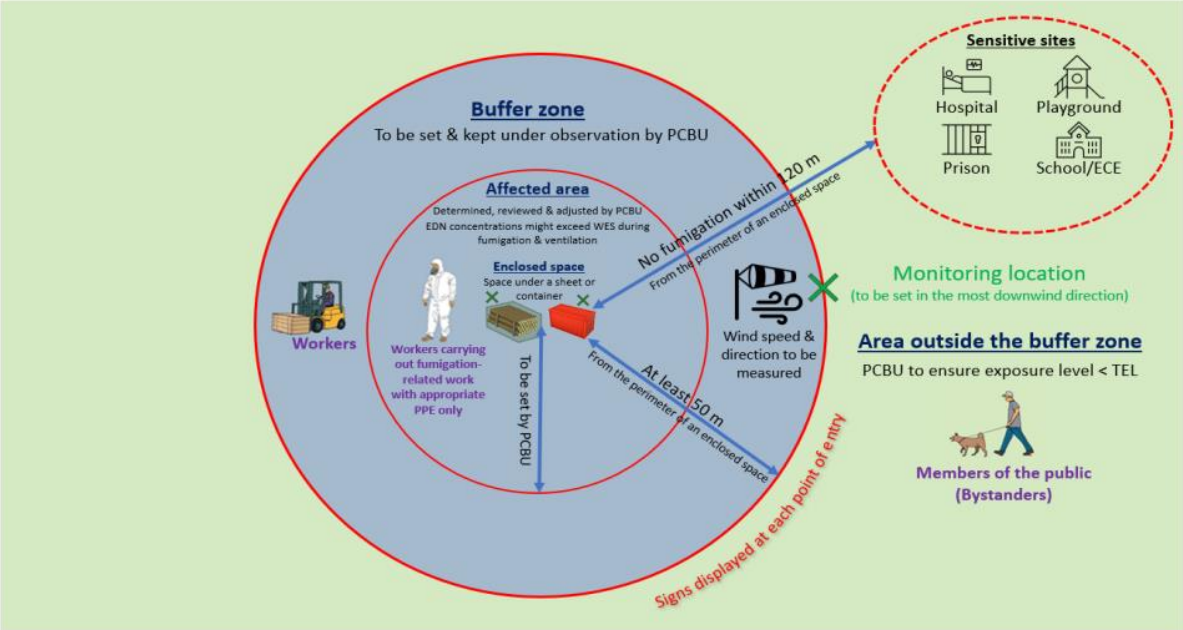
The EPA decision includes controls and modifications to controls as provided in Figure 2 below. Figure 3, copied from the EPA staff report, provides a simplified representation of controls and measures applicable to EDN fumigation operations for illustrative purposes.

Figure 2: EPA Decision HSR101529 – EDN additional controls and modifications to controls

HSNO Additional Controls and Modifications to Controls

Code	HSNO Act	Control
Application rate	Section 77A	The maximum application rate of this substance is 120 g of substance/m^3.
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: • This substance must only be used as a fumigant for logs or timber for export under a sheet or in a shipping container. 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.
Notification of fumigation	Section 77A	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. 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.
Notification of TEL exceedance	Section 77A	A PCBU with management or control of fumigation of logs or timber using EDN must— 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 b. include in the notification— i. the source of that exceedance; and ii. the exposure value(s) that exceed the appropriate TEL value: and iii. the individual monitoring values that were used to generate each relevant 24-hour exposure level.
Annual reporting	Section 77A	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.

Figure 3: Simplified representation of controls and measures applicable to EDN fumigation operations (distances not to scale)



4.2 Other fumigants

In the original application Genera included a number of alternative fumigation treatments. **These were withdrawn** in response to the Regional Council's request for further information pursuant to s92 RMA.

5 Site and Receiving Environment

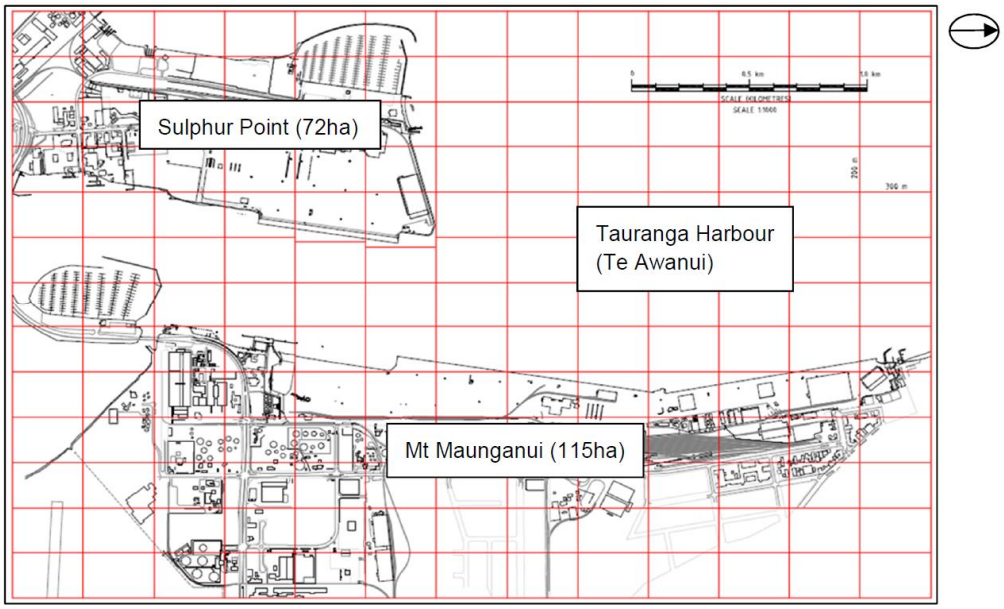
5.1 Site Description

Genera provides fumigation services to importers and exporters throughout New Zealand and in particular at the Port of Tauranga (the subject of this consent application). The Port of Tauranga is located at 2 Salisbury Ave, Mount Maunganui. Access to the Port operations is via Hull Road. Public access to the Port is not available. Figure 4 provides an oblique aerial photograph of the Port of Tauranga.

Figure 4: Port of Tauranga (source: Port of Tauranga Fumigation Procedures SOP)

The Port of Tauranga occupies 115 hectares of land at Mount Maunganui and 72 hectares of land at Sulphur Point (Figure 5). This includes the land currently used for wharf activities and the surrounding land, within the Port boundaries, used by industries supporting the Port.

Figure 5: Port Areas



This resource consent application is for fumigation activities at the Mount Maunganui wharves within allocated fumigation areas and at the Sulphur Point wharves as shown on Figure 1. On the Mount Maunganui side of the Harbour, the Port has 2,055m of linear (continuous) berth face in Te Awanui (Tauranga Harbour). Immediately adjacent to the berths are cargo sheds and cold storage facilities. Facilities are provided at the northern end of the Mount Maunganui wharves for Cruise ships. Spread along the wharf are 7 bunker points that allow ships to refuel while loading or unloading. This area occupies approximately 115ha. Additional land is available for cargo handling and storage outside of this area but this consent application only applies to the area immediately adjacent to Te Awanui.

The Sulphur Point wharves (approximately 72ha) are utilised as the Port's container terminal. Approximately 1 million containers are processed through the terminal each year (1,233,177 containers for the year period to 30 June 2019). Approximately 4,800 container fumigations per year are undertaken within this area (based on 2017- 2019 data).

The Port of Tauranga Ltd has issued its own Fumigation Procedures for the Port to meet the regulatory requirements imposed by the MPI and New Zealand's trading partners' QPS requirements, with specific controls to meet and manage the health, safety and environmental regulations. Genera's operations at the Port must also be in accordance with these Port procedures.

The following fumigation areas and buffer zones shall apply to the area covered by the renewed air discharge permit:

- The relevant parts of the Port Zone within the Bay of Plenty Regional Coastal Environment Plan managed by way of the Navigation Bylaw administered by the Harbourmaster (Ship hold fumigations), and
- The Port Industrial Zone as shown in the Tauranga City Plan (TCP) east of Keith Allen Drive (Sulphur Point) and west of Totara Street (Mount Maunganui Wharves) that is owned by, and under the control of, the Port of Tauranga Ltd and to which public access is excluded.

Where there is an overlap between the constraints of the zones, the more onerous zone provisions prevail. The areas within which fumigation is allowed to take place under Resource Consent 62719 are shown in the FMP prepared in accordance with that consent.

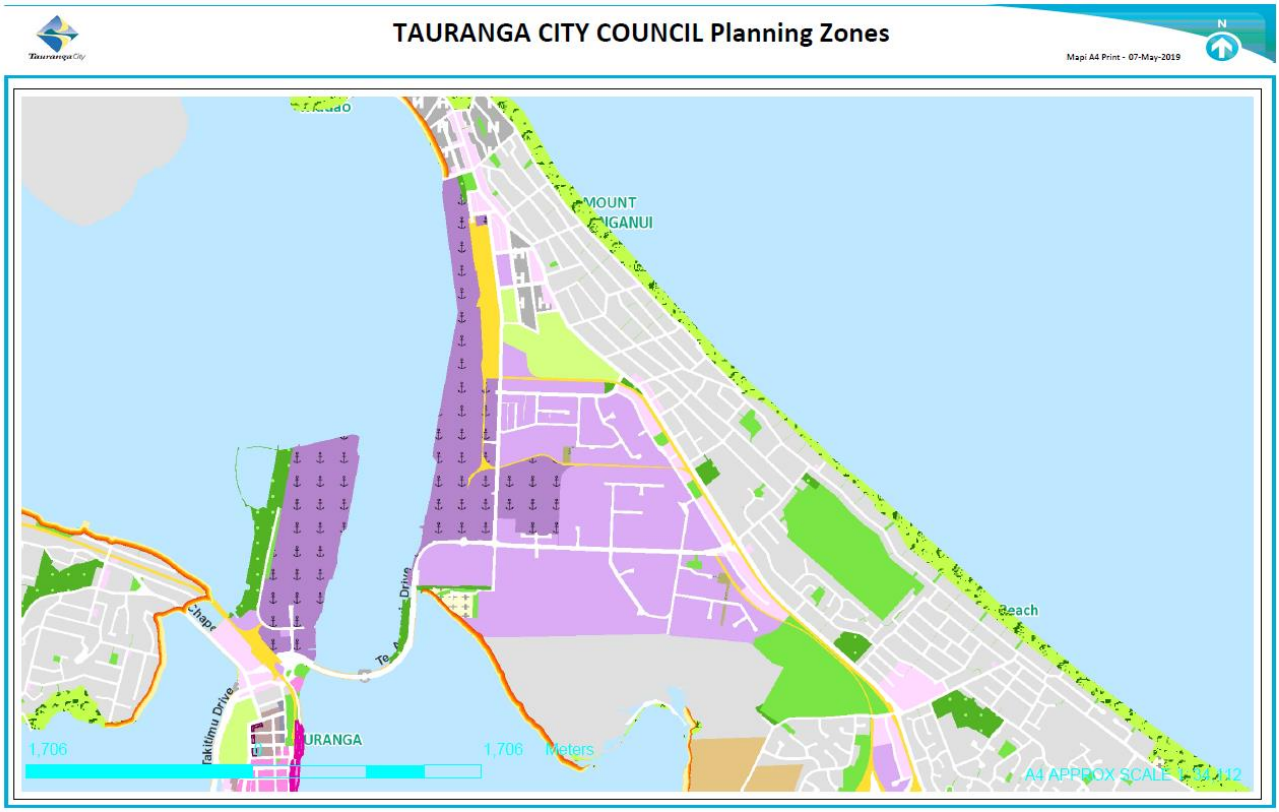
5.2 Land Use

The landward area of the Port is within the jurisdiction of the Tauranga City Council and is zoned as Port Industrial in the Tauranga City Plan (Figure 6). The site and surrounding area are characterised by Port activities in an industrial environment with the adjacent land at Mount Maunganui predominantly used for industrial purposes. At Sulphur Point the adjacent land is comprised of railway and Open Space areas.

The Mount Maunganui wharves are located within a highly modified and developed Industrial Zone and coastal edge. The wharves handle a range of cargo such as bulk cargo, break-bulk and bulk liquid & dry cargo. There are a number of activities, operations and facilities on Port land, which are controlled by organisations other than the Port. Site activities and facilities within the Port include; cargo handling activities, marine works, hopper wash/plant wash, debarker facility, bunkering, fumigation, coal facility, stevedoring, marshalling, warehousing and logistics and Port security.

Te Awanui (Tauranga Harbour) is located to the west of the Mount Maunganui wharves.

Figure 6: Tauranga City Plan - Planning Zones



5.3 Sensitivity of Receiving Environment

The Port is surrounded by predominantly industrial sites such as Ballance Agri-Nutrients fertiliser plant, Dominion salt plant, Lawter chemical manufacturing plant, Ixom chemical manufacturing plant, Inghams animal feed mill manufacturer and various other industrial activities such as fuel storage, vehicle maintenance, engineering workshops and freight companies.

In general, the nearby receptors, which are considered to have a high sensitivity to adverse air quality effects, include the Mt Maunganui residential areas (grey in Figure 6) to the north and east of the site, at its closest point located approximately 300m to the east of the Port boundary on Tawa Street (Genera operates mainly to the southern end of the Port which is a further 100m from these receptors). The nearby Urban Marae Community (Figure 6, pale yellow with crosses) directly to the south of the Port Industry Zone is located approximately 600 m south of the Port and the Active Open Space Zone associated with Blake Park (Figure 6, light green) to the east beyond Totara Street contains the Mount Maunganui playcentre which is an early childhood centre, as well as being used for organised sports up to and including international competition (Hockey and Cricket in particular). The Tauranga Bridge Marina located approximately 600 m to the south of the Port offers short to medium term stays for people living in a boat.

There are commercial retail areas (Figure 6, light pink) to the north and east on Maunganui Road and the northern end of Totara Street and industrial areas (Figure 6, purple) to the east of Totora Street. The Port Industrial (Figure 6, dark purple with anchors) use areas are generally not accessible to the public. Totara Street is effectively the boundary between the Port activities and public areas although the activities fronting Totara Street lie outside the area occupied and controlled by the Port of Tauranga Ltd outlined in dark blue (Mount Maunganui wharves) and light blue (Sulphur Point) in Figure 1 which is the buffer zone boundary for the purposes of fumigation.

While there is public open space adjacent to the Sulphur Point wharves, all fumigations undertaken at Sulphur Point are subject to 100% recapture and occur more than 25m away. Therefore, this area is not considered to be sensitive to fumigation activities at Sulphur Point.

In summary, all locations beyond the Port boundary at the Mount Maunganui wharves are expected to be sensitive to discharges from fumigation operations and compliance with the TELs prescribed in EPA Decision HSR001635 for MB, HSR101529 for EDN and WorkSafe NZ requirements for Phosphine as well as MB and EDN are critical to avoid adverse effects. Industrial and non-residential areas are expected to be less sensitive to exposure as people in these areas are less likely to be exposed at these locations for long periods of time and they are more likely to be working indoors and/or will be on site for limited durations during working hours or being transient passing through the area.

5.4 Topography

The application site and the surrounding topography are flat with variations in elevation brought about from buildings, ships, log stacks, etc. The closest natural topographical features are Moturiki and Mount Maunganui (Mauao) which are located approximately 3 – 4 kilometres to the north of the site. These features are not expected to have a significant effect on the dispersion of pollutants emitted from the Port site due to their distance from the site.

5.5 Meteorological Conditions

Meteorological conditions influence the dispersion of air pollutants. The most influential meteorological parameters are wind speed, wind direction and atmospheric stability. Dry weather conditions and hot temperatures may also influence the dispersion of contaminants.

The closest meteorological monitoring site to the Port is the Tauranga Airport Weather Station, approximately 1.5 km southeast from the site. As the monitoring station is located relatively close to the site and the terrain in the area is predominantly flat, wind conditions measured at the monitoring site are expected to provide a reasonable representation of wind conditions at the Port.

5.5.1 Wind Speed and Direction

The prevailing winds in Tauranga are typically from the southwest as shown by the wind rose in Figure 7. This wind rose is generated by the meteorological data measured at Tauranga Airport Weather Station from January 2014 to December 2018 (inclusive) that was used in the air discharge modelling undertaken originally for this application by Golder and subsequent modelling undertaken for the EPA Reassessment of MB[2]. It also shows that winds from south-south-west are relatively frequent and have a higher proportion of lighter wind speeds.

Wind roses for specific times of the day and seasons are provided in Figure 19 and Figure 20 in the Golder report, Technical Air Quality Assessment, October 2019 (Appendix D, October 2019 application).

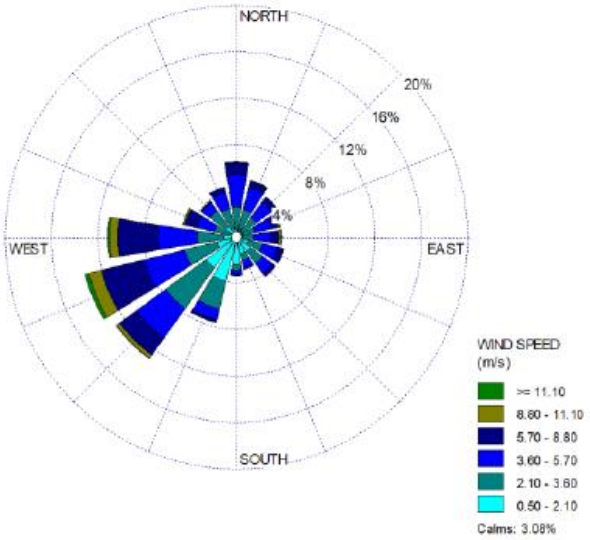
The data indicate that early morning or night conditions are likely to provide for the poorest dispersion of MB generated by the site, whereas conditions during the middle of the day are more likely to provide for better dispersion. Seasonally, spring and summer typically have a higher proportion of strong winds where MB from

[2] The EPA Reassessment of Methyl Bromide undertook a careful analysis of dispersion modelling for MB from the Port of Tauranga including expert conferencing of a number of air modelling experts of which Golder was one. As a result Genera adopted the modelling output agreed by the EPA's Decision-making Committee and withdrew the Golder report included as Appendix D with the October 2019application. Reference to that report is retained where relevant for information and consistency.

the site would be more readily dispersed and diluted, whereas winter and autumn are more characteristic of lighter winds.

Tauranga has a mean temperature of 15.4 °C with a range from highest to lowest of 30 °C to 0 °C. The mean wind speed for the years 2014 to 2018 was 13 km/h (or 3.7 m/s). The rainfall for Tauranga is 1189 mm per year on average with rain occurring on 151 days per year (ASG, 2018c).

Figure 7 Tauranga Airport Prevailing Winds (2014-2018) – All Hours



5.6 Background Air Quality

The background air quality at the site is described in the Golder report (Appendix D, October 2019 application) as follows;

> *"MB in the air can be originated from natural sources such as the ocean and anthropogenic sources such as biomass burning and motor vehicles running on leaded gasoline (Golder note, leaded petrol is no longer used in New Zealand) (Yvon-Lewis & Bulter, 2015).*
>
> *To confirm that there are low levels of background MB, a background sampling of MB has been undertaken as part of the ambient MB monitoring programme. The monitoring programme is described in detail in Appendix F (October 2019). A background sample was collected in a rural area approximately 2 km to the south of Katikati. A 24-hour sample was collected using a whole air sampling canister on 8 August 2019. It was found that MB was below the detection limit of 0.01 ppm in this sample. Additionally, there was one occasion for a sample at the port where a 1-hour sample was taken when the fumigation was not upwind of the cannister. This sample was also below the detection limit of 0.01 ppm.*
>
> *The BoPRC has been running five ambient monitoring sites continuously along the boundary of the Tauranga Port. MB is monitored using a photoionization detector (PID) to monitor total volatile organic compounds (TVOC), of which MB can be a component. While this provides useful information on TVOC concentrations, the relationship between TVOC and MB will vary depending on the sources upwind at the time of sampling. Therefore, this data cannot effectively be used to determine background MB concentrations at the Port of Tauranga."*

Given the above, it is assumed that the background concentration of MB is likely to be negligible at Mt Maunganui.

6 Discharges to Air from Genera Fumigation Operations

Genera fumigations under Resource Consent 62719 are subject to a Fumigation Management Plan (FMP), a copy of which was included in Appendix C to the original application. Different fumigation scenarios exist for the different types of fumigations that occur for export and import goods. The following fumigation scenarios are described; log stacks, break-bulk cargo, containers and ship holds.

Discharges to air of Phosphine may occur from accidental or residual releases during handling, on activation immediately prior to sealing the ship hold, or if the ship holds are not completely sealed. On wharf use of Phosphine will be of product in enclosed spaces that may include shipping containers or grain/flour siloes. A similar potential for release to air occurs in these situations when the Phosphine fumigant is activated and the container is then closed. EDN is not currently used by Genera at the Port.

6.1 Discharges to air from MB fumigations

6.1.1 Log Stack Procedures

A long flexible tube with holes in is first laid around the log stack so that fumigant can be applied and recapture can be undertaken. The log stacks are then covered with a long tarpaulin (sheet) that has sufficient width to provide an "edge" to the cover. A double water seal (flexible hose that is filled with water) is then laid around the edge holding, and sealing, the tarpaulin to the ground. Fumigant is pumped into the enclosed space via the flexible tubes to the specified dose rate, the entry is sealed and the sealed log stack is left for the fumigation period.

On completion of fumigation approximately 50% of the MB dosed is adsorbed into the logs the balance in the headspace under the sheet is then extracted via the flexible tube and the recapture equipment. When recapture has been completed in accordance with the requirements of HSR001635 the sheet is removed. As there is still some residual MB within the headspace this process is undertaken slowly to allow as much dilution and dispersal as possible.

Venting and uncovering log rows is undertaken in accordance with the current version of Genera Safe Operating Procedures 3.6[3] (SOP 3.6), FMP Appendix 9. Once ventilation has been completed, and the fumigant levels in the RA/SWZ are below 5 ppm for at least 15 minutes, a Clearance Notification to the Port of Tauranga Limited is issued and the fumigation warning notices are removed.

When venting logs on the berth pre-loading area (shown as Zone 1 on Figure 3-4), additional steps are taken including; coordination with other Persons Conducting a Business or Undertaking (PCBUs) working on adjacent berths to ensure safe operating procedures are followed and any stevedores / marshallers on the adjacent berth(s) are advised of the venting operations.

Spatially, log rows must be at a height to enable fumigators to safely cover rows while also ensuring there is a gap of at least two metres between log rows to enable recapture equipment to be used. This is necessary to ensure:

- The safety of the fumigators from falling/ moving logs;
- That the covers can be secured to prevent uncontrolled discharge of fumigant;
- The amount of fumigant is such that a controlled release can be achieved;

[3] Genera Safe Operating Procedures are proprietary to Genera and are commercially sensitive. They may be provided to BOPRC on request subject to an order pursuant to s42 RMA effective for the duration of the consent.

- To allow adequate access to log rows for the purpose of meeting MB recapture requirements; and
- The proper installation of the MB recovery system is provided.

A Site Traffic Management Plan (STMP) is implemented for all log fumigations to ensure that when a log row is being covered, two adjacent rows cannot be accessed by log handling machinery, to ensure the safety of the Genera team. While log stacks are under fumigation, the immediately adjacent row cannot be accessed by any machinery or vehicles to ensure the integrity of the fumigation.

If there are no immediately adjacent rows, traffic cones are used to define a safe distance from the fumigation area. The STMP is implemented for the duration of the fumigation and ventilation activity until a Clearance Notification to the Port of Tauranga Ltd has been issued and all warning notices are removed. During all stages of the fumigation process, until ventilation is complete, the RA/SWZ are managed and monitored in accordance with HSR001635, the conditions of resource consent RC62719 and WorkSafe /EPA requirements.

Fumigation volumes/ quantities associated with log stacks

The volume (quantity) and log exposure time required for effective fumigation of logs is dependent on the export requirements of the destination. The quantities and levels of fumigant required are provided in Table 2 below.

Table 2 MB Dose rates for China and India

Destination Country	MB Dose rate
China	80g/m^3 for at least 16 hours at log and ambient temperatures above 15˚C 120g/m^3 for at least 16 hours at log and ambient temperatures between 5˚C to 15˚C
India	48 g/m^3 at 21°or above for 24 hours 56 g/m^3 at 16-20° C for 24 hours 64 g/m^3 at 11-15°C for 24 hours 72 g/m^3 at 10-11° C for 24 hours

Once fumigated, logs are required to be loaded onto ships within 36 hours of ventilation in summer and within 504 hours in winter in accordance with the export requirements for treated logs.

By introducing the use of Phosphine as an in-transit fumigant Genera has reduced the amount of MB used by approximately 1,900 tonnes per year.

MB cannot be used as an in-transit fumigant as that would contravene the Montreal Protocol which prohibits the discharge of ODGs in international waters.

6.1.2 Break-bulk Cargo

Similar to log stacks, fumigation of break-bulk cargo on the wharf is undertaken under sheets. The fumigation procedures for break-bulk cargo under sheets are similar to log stacks.

The break-bulk cargo must be at a safe height and have a minimum 2m free space around the cargo to allow for recapture technology to be used. A STMP must be implemented for each fumigation. During all stages of the fumigation process, recapture and until ventilation is complete, the RA/SWZ are managed and monitored in accordance with the requirements of HSR001635, the conditions of resource consent RC62719 and the EPA/ WorkSafe requirements.

Once ventilation has been completed and the fumigant levels in the area are below the EPA/ WorkSafe requirements, at the boundary of the RA/SWZ, a Clearance Notification to Port of Tauranga Limited is issued and the fumigation warning notices are removed.

Fumigation volumes/ quantities

The volumes and quantities of MB required for break-bulk cargo under sheets vary according to the material being fumigated. In general, approximately 2.4 – 5.6 kg of MB is used in break-bulk cargo fumigations.

6.1.3 Containers and Cargo/ Containers in Sheds

Containers

Since April 2018, all container fumigations using MB have been subject to the use of recapture technology. All containers are fumigated in a designated, secure area within the Sulphur Point area of the Port. For containers under sheets (not in sheds), the same requirements apply as for logs and cargo under sheets.

For containers being fumigated under sheets, the minimum Port Buffer Zone is 25m and the minimum risk area is 5m. For containers being fumigated in situ (direct into container, no sheets), no risk area applies, however, when venting these containers, the RA/SWZ applies.

In Sheds (Cargo/ Containers)

When shipping containers, the contents of those containers, or other cargo are fumigated in sheds, the shed is completely locked, and all entrances are marked during the fumigation process. Only fumigation staff wearing appropriate PPE can be present within the shed during the fumigation process.

Fumigation volumes / quantities

The volumes and quantities of MB required for containers and enclosed sheds vary according to the material being fumigated but are generally in the order of 2 – 3 kg per container.

6.1.4 Ship Holds

While the EPA decision HSR001635 provides for fumigation within ship holds using MB until 1 January 2023 the buffer zone of 900m makes it impractical to implement at the Port and Genera no longer undertakes this work (i.e. MB fumigation within ship holds).

6.2 Genera Fumigation Management Plan (FMP)

Until a new consent for fumigation at the Port of Tauranga is granted discharges to air from Genera fumigation operations under Resource Consent 62719 are subject to Genera's FMP.

The purpose of the FMP is to ensure that the conditions of current resource consent RC62719 (Condition 5.5.2) are complied with while taking into account the health and safety of employees, non-occupational bystanders within the vicinity of the fumigation activity and the public in general. It also prescribes the Port areas within which fumigation can take place (as shown on Figures 1 – 3 of the FMP). In summary, fumigation cannot take place within:

- 100m of the Port Mount Maunganui wharves eastern boundary
- 75m of the Port Sulphur Point wharves western boundary
- 200m of any Cruise ships
- Other areas as indicated in the FMP

The FMP addresses the following matters:

- Health, Safety and the Environment
- Cargo in Ships' holds
- Cargo under sheets

- Logs and timber under sheets
- Shipping containers and contents
- Fumigation areas and buffer zones
- Monitoring
- Reporting

While an FMP was proposed in both the original application and in the Addendum to the application dated 8 October 2021 these are all matters that are now addressed in HSR001635 and WorkSafe NZ requirements as well as being described fully in the Port of Tauranga's Fumigation Procedures and Genera's Standard Operating Procedures (SOPs). The areas of fumigation at the Port are identified in Figure 1.

As these matters are fully covered in these documents and WorkSafe requirements and SOPs may change at any time (outside of the RMA process) to take into account new findings and technology, it is not proposed to include a FMP as a requirement of this new consent application.

This matter has been discussed with the BOPRC's Compliance staff and it is agreed that an FMP separate from the existing requirements and SOPs is a duplication of standards that is not necessary.

6.3 Monitoring

For MB, HSR001635 is outcomes focused. In particular, the established Tolerable Exposure Limits (TELs) must be met. In order to show that they are being met records of each fumigation must be recorded and reported on.

Currently monitoring required during fumigations are outlined in section 8 of the FMP, the consent conditions and the standard operating procedure SOP3.7.

Given that HSR001635 comprehensively covers monitoring and the practical implementation of monitoring are covered by Genera's SOPs which are designed to comply with these requirements it is not necessary to duplicate these requirements in this consent.

It is therefore proposed that the records and reporting required are copied to the BOPRC and any notifications of exceedance are also made to the BOPRC so that appropriate enforcement and compliance actions may be taken. The TELs required in HSR001635 are proposed to be included as a condition of this consent to enable such action to be taken. The TELs imposed are set out in Table 3 below:

Table 3: Tolerable Exposure Limits for MB (from HSR001635)

Control Code	Control
TEL	The following tolerable exposure limits in air (TEL_{air}) values apply to methyl bromide. 1-hour TEL_{air} – 1 ppm or 3.9 mg/m^3 24-hour TEL_{air} – 0.333 ppm or 1.3 mg/m^3 Chronic TEL_{air} (annual average) – 0.0013 ppm or 0.005 mg/m^3

6.4 Recapture of MB Fumigation

Recapture technology describes systems that reduce MB emissions from fumigation enclosures. Prior to venting, MB is extracted from under the tarpaulin and destroyed in a process called recapture. The Golder report (Appendix D, October 2019 application) provides a detailed description of the recapture process previously used by Genera. Only MB is required to be recaptured following fumigation as Phosphine and EDN are not Ozone Depleting Gases.

However, the EPA Decision (HSR001635) requires that all MB fumigations are undertaken in accordance with the performance criteria listed in Tables A, B and the Buffer zones listed in Table C of that decision.

These Tables provide performance criteria and buffer zones based on a comprehensive review of air modelling and monitoring data based primarily on the Port of Tauranga. These are stringent criteria that have not been appealed by the submitters to the reassessment application based on a matrix of factors including minimum recapture, dose rate, event recapture proportion and recapture performance.

As stated in the Addendum (October 2021):

> *"Genera accepts the outcome of the comprehensive modelling of the discharge of MB to air undertaken for the EPA Decision-making Committee and the controls that have resulted from that modelling in Table C of the EPA Decision.*
>
> *Therefore, none of the modelling material prepared by Golder or Sullivan Environmental Consulting Inc. (SEC), as it relates to MB, included in the application is now needed or relevant. As a result, sections 7.3.1, 7.3.2, 7.3.3 and 7.3.5, Appendix D and the response to the further information request Part 3 dated 31 July 2020 are withdrawn from the application.*
>
> *Genera do not propose to present any expert modelling evidence to the Hearing."*

6.4.1 Recapture process

Log Stacks

The on-wharf fumigation process for log rows using MB occurs as follows. Firstly, a large diameter flexible tube with holes in (for fumigation and recapture use) is laid around the base of the area being fumigated, the logs and tube are then covered with a tarpaulin. The tarpaulin is then secured with a double water seal (hose filled with water) laid around the base of the log stack. Once the tarpaulin is secure, MB is released into the covered log row, an action that typically takes 30 minutes. The log row is then left for 16 to 24 hours depending on the destination. After that period of time the recapture procedure commences which takes between 2 – 4 hours, after which the tarpaulin is removed by slowly winding back the tarpaulin.

During the removal of the tarpaulin, active monitoring of the fumigant levels in the RA/SWZ is undertaken. Communications between the monitors and staff removing the tarpaulin is maintained so that the release is controlled to below 25 ppm at the RA/SWZ).

Covering of goods for fumigation cannot take place if the wind is greater than 25 knots (13m/s) and ventilation cannot take place when wind speed is less than 2m/s.

In order to meet the performance criteria for HSR001635 Genera has adopted the use of activated carbon recapture technology rather than the liquid scrubbers used previously. This is quicker and more efficient than the liquid recapture medium used previously.

Ship Holds

Genera no longer fumigates Ship Holds using MB.

7 Consideration of Alternatives, Methods or Location

The Fourth Schedule of the Resource Management Act (1991) requires a description of any alternative methods of discharge, including discharge into any other receiving environment where there are significant adverse effects.

Section 105 of the RMA also requires that for discharges that would otherwise contravene section 15, the consenting authority must also consider any possible alternative methods of discharge, including discharge into any other receiving environment, in addition to the matters in Section 104(1).

As a consequence of the EPA Decision it is apparent that the use of MB and its subsequent discharge to air, while remaining important for the protection of New Zealand's biodiversity, will reduce over time. This is significant in the immediate future as a result of the prohibition on ship hold fumigation, but will continue over the next 14 years as a consequence of the transitioning of minimum and average annual recapture rates from 30% and 55% respectively to 99%. Genera is currently achieving 90% minimum recapture rates.

The alternatives to fumigation of logs by MB are fumigation using phosphine and EDN and debarking.

Debarking equipment is able to be installed at locations other than the Port and is already in use at Murupara. The use of this equipment is increasing and is a viable alternative provided the receiving countries accept it as a suitable alternative to chemical treatment. At present China does accept debarking but India does not. However, India only represents approximately 5% of the New Zealand raw log export trade. It is expected that there would be an increase in investment in debarking equipment to replace the use of MB over time.

Genera has introduced the use of Phosphine for in-hold shipments to China which has replaced approximately 1,900 tonnes of MB per year.

The EPA has now authorised, the use of EDN as a phytosanitary agent for logs and timber treated under sheets or in containers subject to controls. The next step is for New Zealand's trading partners to accept the treatment of goods with EDN.

In the short term an alternative method in the application of MB would be that the dose rates prescribed by China and India are reduced to 40g/m^3 or less. This is currently being discussed with China in particular by the Ministry of Foreign Affairs and Trade.

8 Requirement for Resource Consent – Activity Status

8.1 Resource Management Act 1991 (RMA)

Section 15(2) of the RMA prohibits the discharge of any contaminant into air in a manner that contravenes a rule in a regional plan unless the discharge is expressly allowed by a resource consent, or regulations, or allowed by section 20 (certain existing lawful activities allowed). Section 20 does not apply in this case and as the discharge is not expressly allowed by a rule in a regional plan, resource consent is required for MB, Phosphine and EDN.

Consent is also sought under section 15B, RMA, Discharge of harmful substances from ships or offshore installations, to cover the discharge of Phosphine from ship holds.

8.2 Bay of Plenty Regional Natural Resources Plan – Activity Status for Proposal

The proposal requires resource consent because of the following provisions in the operative Bay of Plenty Regional Air Plan (RAP). The RAP 2003 has recently been replaced by PC13 (Air Quality) to the Regional Natural Resources Plan (RNRP). A decisions version of PC13 became operative in part on 12 March 2019. The following rule is now considered operative as no appeals are associated with it:

> ***AQ R20 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:*
>
> *(a) Using fumigants other than methyl bromide, is a discretionary activity.*
>
> *(b) Using methyl bromide with effective recapture, is a discretionary activity.*
>
> *(c) Using methyl bromide without effective recapture, is a non-complying activity*

The activity proposed is for the use of fumigants for quarantine application and pre-shipment applications including the use of MB with effective recapture (AQ R20 (b)) and using fumigants other than MB such as Phosphine and EDN (AQ R20 (a)).

Effective recapture in relation to fumigation is defined in PC13 as:

> *"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."*

Therefore, resource consent for the proposed discharge of contaminants to air is required under Rule AQ-R20.

Since PC13 was deemed to be operative the EPA decision HSR001635 has also been made effective and Genera is now required to comply with the controls in that decision.

The equivalent measure to Effective Recapture in PC13 in HSR001635 is Minimum Recapture (definition provided in section 1.5) as referenced in Table B of the decision (in section 3.1 above). HSR001635 requires that a minimum recapture performance criterion of 80% is met by 1 January 2031. However, Genera is currently achieving this criterion with event recapture proportion of 100%, minimum recapture of 90% and annual average recapture performance trending towards 100%.

Therefore, it is considered that the PC13 definition of effective recapture is being met and the application is for a **discretionary** activity.

As a result of the changes to the application in response to the EPA Decision HSR001635 this is different to the activity status noted in the original application which was non-complying.

9 Air Quality Assessment Criteria

9.1 National Environmental Standards (MfE, 2011) and Guidelines for Ambient Air Quality (MfE, 2002)

The National Environmental Standards for Air Quality (Ministry for the Environment, 2011) (NESAQ Regulations 2004) and national ambient air quality guidelines (Ministry for the Environment, 2002) are designed to address the health effects caused by poor outdoor air quality. The regulations specify a threshold concentration in ambient air for SO_2, CO, NO_2, and PM_{10} over specified averaging times. The standard also provides for Volatile Organic Compounds (VOCs).

The discharge of MB, Phosphine or EDN is not addressed in the NESAQ regulations, therefore the NESAQ is not applicable.

9.2 New Zealand EPA – MB

The New Zealand EPA produced a document in 2011 (NZEPA, April 2011), outlining ambient guidelines for MB, which while not explicitly cited in the Good Practice Guide for Assessing Discharges to Air from Industry (Ministry for the Environment, 2016), it is considered to be next in order of priority for consideration. The EPA Ambient Tolerable Exposure Limits (TELs) for MB are the same as the Office of Environmental Health Hazard Assessment (OEHHA) for both acute (1 hour) and long term (annual) values (see Table 3).

Based on a recent ESR review of MB assessments (2019), attached to the October 2019 application as Appendix F, the TELs (NZEPA, April 2011) for MB are likely to be the most appropriate guidance for both the Port area (excluding the Genera exclusion zone) and offsite effects.

Following a comprehensive reassessment of the use of MB in New Zealand the EPA Decision HSR001635 has retained these critical standards unchanged from the earlier assessment.

9.3 Phosphine

The following summarises the assessment of regulatory guidelines of the use of Phosphine in the ESR report (Appendix F, October 2019 application). The EPA and its predecessor organisation, ERMA, have approved importation or manufacture of a liquified high-pressure cylinderised source of phosphine gas. For the phosphine gas application, ERMA 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:

- Tolerable exposure limit from air (TEL_{air}) = 0.0003 mg/m^3
- Ceiling TEL_{air} = 0.01 mg/m^3

For occupational exposure the following Worksafe WES-TWA and WES-STEL 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^3). The associated short-term exposure limit (WES-STEL), a 15-minute weighted average, for phosphine is 1 ppm (1.4 mg/m^3).

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

9.4 EDN

Section 4.1 outlines the recent EPA decision on the importation and use of EDN in New Zealand (HSR101529). The decision sets a TEL as a 24 hour average of 0.034 ppm.

10 Assessment of the Effects of Discharges to Air

10.1 Overview of Assessment of Effects

The assessment of effects of discharges to air from Genera fumigations includes the effects of MB discharges and the effects of discharges from the use of Phosphine and EDN.

The effects associated with the MB discharges primarily relate to ozone depletion, health effects and cultural effects. The effects associated with Phosphine and EDN emissions primarily relate to health effects and cultural effects. All the discharges associated with the Genera fumigations will affect the receiving environment in some way and to varying degrees, depending on the sensitivity of the receiving environment and the nature, degree, extent, and volume/concentration of discharge from the different types of fumigations.

However, there are also significant positive effects from the ongoing ability to use fumigants at the Port. These include maintaining biosecurity at New Zealand's border ports (on imported products) and meeting international trade phytosanitary obligations (for exported products).

10.1.1 PC13 Requirements for Human Health and Environmental Effects

The PC13 provisions (Policy AQ P9) require that the best practicable option be used for MB fumigations, and that effective recapture technology of fumigant gases be implemented and safer fumigants, or alternative methods are used to protect human health and the environment from adverse effects. The policy also requires compliance with relevant exposure levels and management regime set by the EPA (to protect human health, i.e., operate within the TEL limits) and have particular regard to protecting the health of persons in sensitive areas from fumigant exposure (i.e., Genera and Port workers operating under the WES limits).

In summary, the use of MB for export and import fumigations is not avoidable, therefore the quantity of MB discharged during fumigations is to be aligned with best management practice to acceptable levels relevant to industry standards, consistent with the requirements of PC13, to protect human health and the environment from adverse effects.

10.2 Positive Effects

10.2.1 Biosecurity positive effects

The fumigation of cargo entering New Zealand is an essential part of the country's border security to ensure that unwanted pests do not enter and become established. Examples of such pests include:

- Queensland fruit fly one male of which was recently found in Devonport, Auckland. Each fly costs $1 million in response,
- grain infestations, 2 ships have recently had to be treated for pest infestations in their cargo at the Port of Tauranga,
- myrtle rust,
- tomato/potato psyllids,
- foot and mouth disease,
- the brown marmorated stink bug, and
- numerous bark and wood-boring insects and fungi many new species of which are being discovered.

The Montreal Protocol provides a specific exception to the ban on the use of MB so that it may be used as a phytosanitary agent in quarantine and protection situations. Without its use there is potential for significant adverse effects on New Zealand's agricultural and horticultural industries – in some cases to the point where they may no longer be viable.

10.2.2 International trade obligations

Log exports are worth approximately $6 billion annually. China accounts for about 48% of the market and it requires that all exports from New Zealand are either debarked or treated with MB or Phosphine. India accounts for a further 5% of the market and it requires that log exports are treated with MB. The Port of Tauranga accounts for approximately 31% of the total volume of logs exported from New Zealand.

Phosphine cannot be used on top-stowed logs to China and it cannot be used on any trade with India. Without treatment by MB or an approved alternative there would be a significant adverse effect on the timber industry including through loss of employment throughout the supply chain from planting to harvesting to export.

10.2.3 Summary of Positive Effects

In summary, fumigation activities associated with biosecurity and export trades are essential for New Zealand and provide significant positive effects to New Zealand as a country at a national level (not just in a regional context).

10.3 Effects of Fumigations – MB

10.3.1 Air Dispersion Modelling

The EPA Decision HSR001635 involved a comprehensive review of air dispersion modelling including expert caucusing on the modelling methodology, data inputs and the outputs. This resulted in the adoption of one model based on the Port of Tauranga from which the controls in the decision were determined.

The controls set a sliding scale for determining the buffer zone for a range of MB dose rates covering applications throughout the year for New Zealand's export markets (Tables A, B and C as provided in section 3.1). The respective controls in Tables A, B and C are assessed as follows;

- In relation to Table A (containers) Genera are undertaking recapture from 100% of all containers fumigated with MB

- Table B sets minimum performance criteria for fumigations using MB under sheets (for example log rows, break-bulk cargo and containers where sheets are used to cover the container). **Genera is currently achieving the HSR001635 control standard for 2031 with 100% of MB fumigations being undertaken using recapture technology, minimum recapture of 80% and average annual recapture performance of approximately 95%.** This is a standard that approximates the controls set for the duration of the consent sought in this application (10 years).

- Table C sets the minimum buffer zone in relation to dose rates for MB fumigation under sheets. These range from 50m for a dose rate ≤ 40 g/m^3 to 150m for a dose rate of 72 g/m^3 ≤ 120 g/m^3. The buffer zone for the Port is defined as being the limit of public access on the land side and the area over which the harbourmaster has control on the harbour side. Genera operates in an area within the Port that meets the greater of these requirements.

On the basis of continued compliance with HSR001635 the effects of the discharge of MB to air is considered to be minor.

10.3.2 Health Risk Assessment

The ESR report (Appendix F, October 2019 application) summarised that the air dispersion modelling undertaken at that time suggested that fumigation could result in exposure of occupational bystanders to MB over the 1-hour TEL. This exceedance in exposure is noted at the maximum (100th percentile) of the predicted MB concentrations, while the 99.9th and lower percentile exposures are below the TEL (refer to Table 6 and Figures 7-1 and 7-2). Maximum predicted exposures over other timeframes (24hr and Chronic) were below TELs for both residential and occupational bystanders.

The ESR report concluded that the derivation of the 1-hr TEL appears to be sufficiently conservative that the predicted TEL exceedances are unlikely to result in adverse health effects.

The EPA Decision (HSR001635) is based on more conservative air dispersion modelling and therefore the ongoing compliance with the TELs, as required by HSR001635, and the increased buffer zones (as determined for the EPA controls with Human Health in mind) would make it even more unlikely that; a) there would be any exceedances and b) that there would be any adverse health effects.

The actual or potential for adverse effects on human health are therefore considered to be less than minor.

10.3.3 Summary of effects of fumigation using MB

Overall, subject to ongoing compliance with the controls imposed by the EPA Decision on the reassessment of the use of MB in New Zealand, the actual and potential effects of the discharge to air of MB associated with the fumigation activity on public bystanders is less than minor.

10.4 Effects of Fumigation – Phosphine

Phosphine is loaded into ship holds at the Mount Maunganui wharves and activated before the ship disembarks. There is a limited period of time following activation and before the ship hold is sealed when Phosphine may discharge to air.

In addition, Phosphine may be used to fumigate grain and grain product on the Mount Maunganui wharves within a container (silo).

The only discharge of Phosphine at the wharf would be by way of an inadvertent or accidental discharge, which has not happened to-date.

It is very unlikely that the public would be exposed to Phosphine through its use on the wharf or within ships at berth as there is a significant distance from the fumigation site to any area that the public has access to.

Staff loading the Phosphine into the holds wear appropriate PPE, other occupational by-standers are excluded from the area while loading is being undertaken. Emergency response equipment is maintained on the site while loading is being undertaken.

While the likelihood of any adverse effect is low the consequences to human health may be high. Mitigation includes using appropriate PPE, excluding non-Genera personnel from the area while preparing and releasing the fumigant, maintaining a check for leaks around the holds and utilising an emergency response plan in the event of a discharge to the atmosphere all of which are implemented through the use of Genera's SOPs.

The proposed mitigation identified above in accordance with WorkSafe NZ and MPI requirements will be appropriate for occupational bystanders at the Port.

Overall, the actual and potential effects of the discharge to air of Phosphine associated with the fumigation activity on public bystanders is less than minor.

10.5 Effects of Fumigation – EDN

The use of EDN for the fumigation of wood and timber under sheets or in a shipping container for export has been approved by the EPA (HSR101529). Genera does not currently use EDN for fumigation at the Port but if it did it would be required to comply with the controls for the use of EDN imposed in HSR101529 and any Safe Work Instruments (SWIs) in place for the use of EDN. The controls in HSR101529 are listed in Figure 2 and include a TEL of 0.034 ppm for a 24-hour period.

On the basis that Genera will comply with the controls and SWIs imposed, the actual and potential effects of the discharge to air of EDN associated with the fumigation activity on public bystanders is less than minor.

10.6 Mitigation of Discharges

The following list of mitigation measures are proposed by Genera for the discharge of fumigants;

- Fumigation undertaken in accordance with the controls imposed in the existing EPA approvals for MB (HSR001635), EDN (HSR101529) and the existing controls for Phosphine administered by MPI and WorkSafe NZ.
- Compliance with the established TELs as outlined below:

Table 4: Tolerable Exposure Limits for MB and EDN (from HSR001635 and HSR101529)

Fumigant	1-hour TEL	24-hour TEL	Annual TEL
MB	1 ppm	0.333 ppm	0.0013 ppm
EDN		0.034 ppm	

* There are no EPA TEL controls established for Posphine but Genera is still required to comply with the WES-TWA of WES-TWA of 0.3 ppm (0.42 mg/m^3) administered by WorkSafe NZ.

- Recapture technology for MB is required to be used in accordance with the EPA Decision HSR001635. Phosphine and EDN are not required to be recaptured.
- For the avoidance of doubt ship hold fumigations using MB will not be undertaken.
- Ventilation will not occur in still or temperature inversion weather conditions or when wind speed is less than 2m/s.
- Fumigations will only occur in allocated fumigation areas within the Port.

10.7 Cultural Effects

The relevant iwi and hapu groups have been engaged to provide an assessment of cultural effects which will be provided in due course (refer to section 11 - Consultation).

The cultural effects of the discharge of contaminants to air include:

- The potential for adverse effects on the mauri, or life-giving force, of the air and the consequential effects on the health of tangata whenua in the vicinity of the discharge.
- The potential for adverse effects on the use of the area around the discharge (including Te Awanui) for culturally important activities.
- The potential for positive effects on the mana of tangata whenua through the continued employment of hapu and Iwi members at the Port of Tauranga and the establishment of a long-term relationship between Genera and the Ngati Kuku and Ngai Tukairangi hapu.
- The potential for positive economic effects on industries and assets owned by Iwi and hapu.

10.7.1 Mitigation of Cultural Effects

- Notification of, and direct communication with, Whareroa Marae and the harbour master as well as the BOPRC before ship hold fumigations take place.
- When notified by the Whareroa Marae, Genera will schedule ship hold fumigations to consider access to kai moana beds in Te Awanui for food gathering for any significant cultural events at the marae including any tangi.
- Ongoing compliance with the TELs required by the consent.
- Ongoing engagement and relationship building between Genera and the marae following the grant of consent, throughout the duration of the consent and beyond.

On the basis that Genera will undertake the above cultural mitigation measures, the actual and potential effects of the discharge to air associated with the fumigation activity on cultural effects are considered to be less than minor.

10.8 Overall Summary of Effects

The potential effects of the ventilation of MB from fumigation activities has been comprehensively addressed in the reassessment of the use of MB in New Zealand by the EPA and controls have been provided in the EPA Decision HSR001635. Genera is required to comply with these controls and through that compliance it is considered that the effects of the discharge of MB to air will be less than minor.

Similarly, the effects of the discharge of EDN used in fumigation are addressed in the EPA decision on HSR101529. Genera is required to comply with the controls in that decision and through that compliance it is considered that the effects of the discharge of MB to air will be less than minor.

The requirements for the use of Phosphine in New Zealand is administered by WorkSafe NZ. Genera is required to comply with these requirements and through that compliance it is considered that the effects of the discharge of MB to air will be less than minor.

Cultural effects and mitigation of cultural effects have been discussed through engagement with the relevant iwi and hapu groups and will continue throughout the duration of the consent and beyond.

Overall, through compliance with the EPA and WorkSafe controls and requirements, the use of recapture technology for MB and continued engagement with iwi and hapu groups, the potential adverse effects will continue to be appropriately managed to best practice industry standards.

11 Consultation

Schedule 4 of the RMA indicates that an AEE should identify: "*those persons interested in or affected by the proposal, the consultation undertaken and any response to the views of those consulted*". The following parties have been engaged with/consulted through the development of this application.

11.1 Core Liaison Group

A core liaison group (CLG) was established to develop a collaborative working arrangement between identified stakeholders and to lay the foundation for a long term, enduring relationship with Genera. The CLG would help provide input into the application. The following parties are current members of the CLG:

- Ngāti Kuku Hapū Trust.
- Ngāi Tukairangi Hapū Trust.
- Te Runanga O Ngāi Te Rangi Iwi Trust.
- Ngāti Ranginui Iwi Society Incorporated.
- Ngāti Pūkenga Ki Tauranga Trust.

The CLG's establishment reflects the results of two workshops held on 22nd February and 22nd March 2019 that involved representatives of each of the parties. The workshops discussed the background to Genera's operation and the pending resource consent applications and explored a possible working approach between the Parties that would result in a 'meaningful relationship'. The immediate focus of the CLG is the collective consideration and development of the application for the discharge of fumigants to air from Genera operations at the Port, in other words "the Port consent".

The CLG had numerous meetings together including a visit to the Whareroa Marae. The meeting dates are summarised below.

Table 5: Engagement with the CLG

Date	Venue	Comments / Overview
22/02/19	Beca	Introductions and presentation on Genera operations and pending consent renewal process and required inputs from the group. Group agreed to meet monthly with flexibility depending on availability of information.
22/03/19	Beca	Draft CLG agreement discussed including resourcing of group members. Recapture update - noting 100% recapture on containers and above 60% recapture on logs /timber, health of workers is highest priority and the primary concern, Genera to consider the cultural and social wellbeings for 'our' people in the consent application. Pressure should be put on exporters to align logistics to achieve 100% recapture. Consideration for iwi owned forestry entities. Milestones include: Air Modelling (Golders) complete start of May 2019 and Health Risk Assessment (ESR) complete June 2019
03/05/19	Beca	Operations at the Port discussed, Cultural aspects for the consent could include green space creation/ planting into limited available industrial areas. Not just monitoring – monitoring makes no physical difference (just informs). Main concern is air quality at the Whareroa Marae next to the Port. Cultural Assessment / Mitigation needed as part of technical reports in addition to the modelling and health impact assessment. Any lessons learnt from other Ports' consents that could be used? Napier no consent required – permitted activity.

Date	Venue	Comments / Overview
		Northport and Napier there is no MB recapture undertaken. Provide for Hapu hui (30 minutes) post meeting together to consider actions and discuss strategy. To be included in agenda/programme going forward. Purpose built facility raised– concrete bunker (China example) but requires Port infrastructure. Fumigation Management Plan provided and agreed to get the FMP independently reviewed. The FMP will be hard to convey to iwi hapu group members hence request for independent review. Genera offered / has open door policy – any questions, queries welcomed It was noted that the Tauranga Moana Fumigant Action Group (TMFAG) are not part of treaty representation as the iwi hapu groups are. TMFAG to be consulted separately. Agreed a Marae and Port visit to be arranged for the next meeting. Noted the change to existing condition has been approved by BOPRC and clarifies fumigations including there is no worldwide industry standard that achieves 100%. Industry best practice is 80% recapture – (Air Plan is now consistent with this 80% target).
15/05/19	Whareroa Marae	Genera representatives were welcomed onto the Whareroa Marae to establish and build relationship with the iwi and hapu groups. The group was officially welcomed onto the Marae and entered the Wharenui where Kaumatua provided a historic overview of the lineage of Te Horo and the taonga within the Whare and the Wharenui itself. The group was led to the wharekai to share kai together. After kai and drink, Tio Faulkner lead the open discussion forum. Dr Julien Huteau (Ecocific Environmental Services) was introduced by the iwi/hapu as their technical advisor. Some actions that arose included: Genera to provide information on the general comparison of EDN and MB to iwi/hapu groups. Genera to provide the approximate amount of MB used each month. A copy of the FMP to be provided to Dr Huteau for review and comment as independent reviewer. Genera to set up a site visit for the iwi/hapu groups to see Genera operations. Overall the group was happy with the discussion and hui and looked forward to the ongoing relationship with Genera.
26/07/19	Beca	Update on recapture percentages; tracking approximately 70% trending upwards for recapture and Condition 5C.1 application to amend recapture targets date to April 2020. Dr Huteau provided review comments on the FMP which is a key part of consent and Genera will continue to work with Julien. Golder air modelling results provided to the group with the worst of the worst-case scenarios modelled. Monitoring needs to be active and more verifiable. Cultural Impact: Concern raised regarding going to collect pipi through the harbour between the Port wharves to the pipi beds near the harbour entrance without knowing whether there was any ship hold ventilation occurring. Genera happy to add Whareroa Marae to notification process when ship hold fumigation/ ventilation is occurring. Whareroa Marae to reciprocate and notify

Date	Venue	Comments / Overview
		Genera when a tangi is occurring and collection of pipi is proposed. Genera happy to accommodate tangi requirements. Based on the modelling, ship hold fumigation is an issue. What do we do? Genera noted that ship hold fumigations could be undertaken under slow release venting to reduce dispersion effects; this includes time of day etc. Approximately only one ship hold fumigation per month so can manage controls. Julien recommended including in the modelling; wind speed trigger points /limits during fumigations to ensure effects are contained within the Port boundary. Modelling assumptions: 450Kg/hr for 13 hrs is hugely unrealistic (3 large log rows per hour for 13 hours). Realistically, most seen in a day for this scenario is half this figure. Julien recommended to convert modelling data to ppm. Remodel on Julien's and other inputs. Cultural Inputs (Ngati Kuku and Ngai Tukairangi) via Julien's inputs supported. Draft Health Risk Assessment completed by ESR. The TEL and WES limits are still considered relevant based on international standards. Cultural Health Risk Indicators to be included through Julien for example: Pohutukawa Trees health and 'green spaces'. Mitigation of cultural Impacts include; Pipi gathering notification and inputs from Julien. Agreed: 1. That the Whareroa Marae will let Genera know of Whareroa Marae tangi and 2. Genera to notify Whareroa Marae when ship hold fumigations are to take place. 3. Copy of Golder Report circulated to Julien. 4. Copy of ESR Report circulated to Julien. 5. Key to consent renewal application is the real time monitoring and quick response.
24/09/19	Ngai Te Rangi	Genera are looking to lodge the application end of next week – 4 October 2019. BOPRC have indicated they would accept the application and then put it on hold until further information is provided e.g. cultural inputs. Iwi/hapu groups to provide Genera a cost estimate and brief for the cultural inputs/ recommendations into the consent application and consent conditions, including roles for a co-ordinator and Julien (technical advisor). Julien suggested it was important to validate the air model especially with data in residential areas. Condition around Genera informing the Marae when ship hold fumigations are to occur (onus on Genera) so can reschedule if any cultural activities are planned. Matt noted that the three main reasons why 33% reduction in MB use over the last 3 years has been; the debarker operation, Chinese logs reducing in price therefore fewer logs and the use of recapture technology. Genera noted that their website has updated graphs with all their monitoring results.

11.2 Nga Potiki

Nga Potiki were invited as part of the initial CLG. Nga Potiki responded by email (5/03/19) to the effect that their main concerns for contaminant discharge are the lack of transparency and associated environmental monitoring. Nga Potiki proposed and supported Ecocific Environmental Services (Dr Huteau) as an independent contractor that could undertake monitoring and review of environmental impacts.

The 5/03/19 Nga Potiki email confirmed that the Nga Potiki Resource Management Trust opposes the re-consenting application by Genera until the following points are addressed:

- Terms of Reference (TOR) between the consent applicants and tangata whenua;
- Engagement of an independent contractor to measure environmental impacts of the activity;
- Independent contractor to provide their report to the team;
- Ongoing monitoring of the activity;
- Resourcing tangata whenua members attendance to meetings;
- Confirm the relationship between Genera and Port of Tauranga.

Genera responded (28/03/19) to the email as follows (and noted that Genera uses Ecocific for monitoring work):

- Terms of Reference (TOR) between the consent applicants and Tangata Whenua - Agreement based on relationship is currently being worked through with Tangata Whenua (22 March 2019 Minutes).
- Engagement of an independent contractor to measure environmental impacts of the activity - Genera have agreed with iwi to third party reviews of specific items that may require review. Air modelling is being undertaken by Golder and ESR are undertaking a Health Impact Assessment for the consent renewal application.
- Independent contractor to provide their report to the team - As per above point. Agreed to 3rd party review of specific items.
- Ongoing monitoring of the activity - Genera undergo extensive monitoring (developed by Dr Huteau) during all fumigation activities including; personal monitors for all Genera staff working within the fumigation exclusion zone (no other occupational bystanders within the exclusion zone), three monitoring points on the downwind arc (within 45 degrees) at the edge of the exclusion zone and three monitors at the relevant Port boundary downwind, for a total of 6 monitors during fumigation.
- Resourcing Tangata Whenua members attendance to meetings - Agreement has been established to resource attendance at meetings.
- Confirm the relationship between Genera and Port of Tauranga - The relationship with the Port of Tauranga is landlord/lease holder. Genera leases land from the Port. Genera's clients are mostly log exporters, timber exporters, customer agents/freight forwarders and importers of a variety of cargoes (e.g., Kiwifruit).

Nga Potiki responded (28/03/19 email) to the response from Genera as follows; *Very substantial response and I thank you. I am happy that you have considered my feedback*.

11.3 Tauranga Moana Fumigant Action Group (TMFAG)

The TMFAG has been involved during the development of the application through attendance at various meetings. The following summarises Genera's meetings with TMFAG representatives:

- 21 February 2019 - Laura Marra; introduction to the consent renewal process approach and update;
- 22 February 2019 - Aubrey Wilkinson (Tauranga Moana Fumigant Action Group and Port Workers Union), Michael Sharp, Kate Barry-Pachino attended the initial meeting with the CLG.

The TMFAG raised the following matters:

- TMFAG suggested that issues of trust remain between the parties and has no confidence with 100% containment/ recapture.
- TMFAG was concerned that the BOPRC monitoring stations are using ratepayers money.
- Concerned with BOPRC compliance in the Port environment and associated aspects with leases within the Port.
- FMP was of interest to the TMFAG. The FMP was provided to TMFAG on 26 April 2019.
- How is the fumigation process audited? Genera uses Independent Verification Services (IVS) which are MPI approved and works within EPA guidelines for audit compliance which includes auditing of work instructions.
- TMFAG holding not just Genera to account, but also the Port to account. Landlords are also responsible.
- If TMFAG included in process, Genera will have better bargaining power with BOPRC.

Further attempts were made to meet with TMFAG representatives in March, May and August 2019 to provide an update on the application process and results of air modelling and health impact assessments. However, there has been no further response from TMFAG.

11.4 Port of Tauranga and Port Users

Genera has met with Port of Tauranga. Written approval has previously been provided.

12 Statutory assessment

12.1 Resource Management Act 1991 (RMA)

12.1.1 Section 15 (RMA)

Section 15(1)(c) of the RMA prohibits the discharge of any contaminant from industrial or trade premises into air unless the discharge is allowed for by a rule in a regional plan or relevant proposed plan, resource consent or by regulations. The fumigations undertaken by Genera fall within the definition of industrial and trade premises in the RMA and as such the renewal of the resource consent for the discharge of contaminants to air is being sought.

12.1.2 Part II (RMA)

The matters listed in Part 2 of the RMA of relevance to this resource consent application have been given adequate regard in the RPS, RAP and PC13. The proposal is considered to be consistent with the policy direction of these documents, so it is not considered necessary to revisit Part 2 of the RMA or make an overall broad judgement pursuant to the High Court direction in R J Davidson.

12.1.3 Section 104 (RMA)

In addition to an assessment of the actual and potential effects of the proposal (s104 (a)), the following provisions must be given regard to under section 104 (b) of the RMA as stated below;

> ***Section 104***
>
> *When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to–*
>
> *(a) any actual and potential effects on the environment of allowing the activity; and*
>
> *(b) any relevant provisions of—*
>
> *(i) a national environmental standard:*
>
> *(ii) other regulations:*
>
> *(iii) a national policy statement:*
>
> *(iv) a New Zealand coastal policy statement:*
>
> *(v) a regional policy statement or proposed regional policy statement:*
>
> *(vi) a plan or proposed plan; and*
>
> *(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

The following sections address the documents relevant to s104.

12.2 National Environmental Standards for Air Quality (NESAQ)

The NESAQ regulations are designed to address the health effects caused by poor outdoor air quality. The regulations specify a threshold concentration in ambient air for SO2, CO, NO2, and PM10 over specified averaging times. The standard also provides for Volatile Organic Compounds (VOCS).

The discharge of MB, Phosphine, EDN or other authorised fumigants is not specifically addressed in the NESAQ, therefore the NESAQ is not applicable.

12.3 Bay of Plenty Regional Policy Statement (RPS)

The second-generation Regional Policy Statement (RPS) became operative on 1 October 2014. The objectives and policies within the RPS that relate to this proposal include:

> ***Objective 1*** *- The adverse effects of odours, chemical emissions and particulates are avoided, remedied or mitigated so as to protect people and the environment.*
>
> ***Policy AQ 1A: Discouraging reverse sensitivity associated with odours, chemicals and particulates***
>
> *Actively discourage:*
>
> *(a) Locating new sensitive activities near activities that discharge offensive and objectionable odours, chemical emissions or particulates; and*
>
> *(b) Locating new activities that discharge offensive and objectionable odours, chemical emissions or particulates near sensitive activities*

Comment:

The RPS notes that after contaminants are discharged to air their effects are often difficult to remedy or mitigate. Therefore, it is important to avoid adverse effects of contaminant discharges to air through careful consideration over the location of land use activities (i.e. fumigations). New land use activities that discharge chemicals need to be discouraged in sensitive areas. Land uses or activities that may potentially affect sensitive activities include: horticultural activities and agricultural activities that discharge sprays and odours including fumigation activities.

In achieving Policy AQ 1A it may be necessary to restrict certain activities to avoid or mitigate incompatible land uses associated with chemical emissions. The Explanation for Policy AQ 1A in the RPS also notes that some activities which generate emissions are locationally constrained (such as ports) and will have a functional need to locate where sensitive activities may already exist. In such circumstances, consideration may need to be given to mitigation measures rather than avoidance.

The discharge of fumigants associated with Genera fumigation operations at the Port fall within this category. Mitigation measures, rather than avoidance, have been outlined in the AEE section of this application. The fumigations at the Port will be undertaken in accordance with strict SOPs in consideration of other sensitive areas/ activities and in a manner that is consistent with Policy AQ 1A.

> ***Policy AQ 2A: Managing adverse effects from the discharge of odours, chemicals, and particulates***
>
> *Protect people's health and the amenity values of neighbouring areas from discharges of offensive and objectionable odours, chemical emissions and particulates.*

Comment:

Managing the adverse effects from the discharge of fumigants to protect people's health has been addressed in this AEE. With the implementation of the strict fumigation procedures, recapture technology, live monitoring and response procedures and notification to various parties the potential effects are appropriately managed to protect people's health (both Port workers health and public health).

Both the WES and TEL standards are applied to the procedural operations to protect workers and those in close proximity, including the public, beyond the Port boundaries. The Health Risk Assessment concludes that the TEL concentrations derived for New Zealand are the most relevant reference concentrations for assessment of methyl bromide concentrations at POT in terms of protecting people's health consistent with

the Policy AQ 2A. This has been confirmed with the reimposition of these TELs in relation to the use of MB in the EPA Decision HSR001635.

> ***Policy CE 14B: Providing for ports***
>
> *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*

Comment:

Fumigation is an inherent activity associated with the Port and New Zealand's export and import requirements. Policy CE 14B provides for Ports in the coastal environment through safeguarding the capacity and efficiency of activities that have a functional need to be located in and around the port. Fumigation activities are such activities and are to be safeguarded for the functionality of the Port and the log export industry, in particular, consistent with Policy CE 14B. The application for the discharge of fumigants will safeguard the capacity and efficiency of the Port and log export industry while implementing mitigation measures having regard to the adverse effects associated with the use of fumigants. Fumigation is restricted to specific areas within the Port and the focus of the application is on mitigation through compliance with the National controls and requirements.

12.4 Bay of Plenty Regional Air Plan (RAP)

On 31 July 2012, BOPRC approved Amendment 1 (Resource Management (National Environmental Standards for Air Quality) Regulations 2004) to the RAP. The RAP has recently been updated by Plan Change 13 (Air Quality) to the RNRP. A decisions version of PC13 came into effect on 12 March 2019. The PC13 objectives and policies that relate to this proposal include:

> ***Objective 2*** *Avoid, remedy or mitigate the adverse effects of all discharges of contaminants into air on the environment which includes the effects on: ecosystems, human health and safety, crops and livestock, amenity values, cultural values, the mauri of natural and physical resources and the global environment.*
>
> ***Objective 4*** *Provide for activities that have predictable and minor effects on the environment as permitted activities subject to compliance with conditions designed to ensure that the effects are avoided, remedied or mitigated.*
>
> ***Policy 1(a)*** *Significant adverse effects of discharges of contaminants into air should be avoided*
>
> ***Policy 1(b)*** *Adverse effects of discharges into air of contaminants that cannot be practicably avoided should be remedied or mitigated*

Comment:

The use of MB for export and import fumigations is not avoidable and is provided for as an exemption in the Montreal Protocol. As assessed and concluded in this AEE, with compliance with HSR001635 (for MB), HSR101529 (for EDN) and WorkSafe NZ requirements for Phosphine, the proposed discharges will not generate significant adverse effects consistent with Policy 1(a) and 1(b).

> ***Policy 2*** *When the effects of discharges of contaminants into air are not adequately understood or are unknown, the discharges should be avoided, and if the discharges cannot reasonably be avoided, they should be monitored so that the effects become known, understood and effectively managed.*
>
> ***Policy 3*** *Discharges into air of contaminants identified as hazardous air pollutants or carcinogens (Schedule 3 – Hazardous Air Pollutants) are to be avoided, or where avoidance is not possible, the quantity of discharge is to be reduced using best management practice to acceptable levels, which are relevant national or international standards or guidelines.*

Comment:

MB is classified as hazardous due to its acute human health effects and adverse effects on the environment as an ODG. The use of MB for export and import fumigations is not avoidable, therefore the quantity and monitoring of MB discharged is to be aligned with best management practice to acceptable levels relevant to industry standards. The health impact assessment (ESR) confirms that the TEL standards are still the most appropriated standards to be used for the management of MB during fumigation. These standards will be applied through the conditions of consent through active monitoring during fumigations so that the effects are known and can be effectively managed through the FMP procedures. The FMP is a live document that can respond to best practice management and standards or guidelines as required consistent with Policy 2 and 3 of the RAP.

> ***Policy 4*** *Promotion of the use of the best practicable option approach including the efficient use of resources e.g. raw materials and energy, whenever it is the most efficient and effective means of preventing or minimising adverse effects on air quality*

Comment:

The use of MB Recapture technology during fumigations is the most efficient and effective means of minimising adverse effects on air quality. The use of recapture technology for fumigations using MB is required by the controls of HSR001635 and is utilised by Genera in all fumigations.

> ***Policy 7*** *Encouragement of other organisations to meet their management responsibilities to reduce the adverse effects on air quality*

Comment:

Genera operates primarily within the confines of the Port which includes numerous stevedore and marshalling operators. The Port and port users are aware of the safety requirements during fumigation activities and accommodate the restrictions in their own operations. This is set out in the Fumigation Procedures for the Port of Tauranga to meet the regulatory requirements imposed by the Ministry of Primary Industries (MPI) and New Zealand's trading partners' phytosanitary requirements with specific controls to meet and manage the Health, Safety and Environmental regulations. Genera's operations at the Port of Tauranga must also be in accordance with these Procedures.

Policy 7 also provides direction for reducing the adverse effects on air quality itself i.e. the environment. Genera, through undertaking recapture process during fumigations is mitigating the effects on the environment. All applicable codes of practice (which are limited in this instance) have been taken into account in the fumigation procedures set out in the FMP.

Policy 8 *Cumulative and/or synergistic effects of discharges into air are to be considered when assessing the environmental effects of activities.*

Comment:

Primary monitoring is undertaken using PIDs which measure TVOCs. MB is one of a number of VOCs that are measured by the PIDs. This means that the readings being undertaken are a conservative assessment of the concentration of MB in the environment which may vary from being quite a low proportion to quite a high proportion depending on the other activities at the Port. By treating TVOC readings as equivalent to the total MB reading the cumulative and synergistic effects of the discharge are considered and result in a conservative assessment. Compliance with the controls of HSR001635, HSR101529 and WorkSafe NZ requirements also achieves the implementation of Policy 8.

Policy 12 Provide for the involvement of tangata whenua as kaitiaki (guardians) in the management of the mauri of air.

Comment:

Tangata whenua have been involved with the development of the consent renewal application (refer to section 8 - Consultation) and have provided input into the FMP consistent with Policy 12.

The following objective and policy was introduced as part of the RAP Plan Change 13 decision and is now considered operative (no appeals associated with it).

12.5 Plan Change 13 to the Regional Air Plan (PC13)

AQ O1 Protect air from adverse effects — Te tiaki I te hau mai I ngā pānga kino

Protection of the mauri of air and human health from adverse effects of anthropogenic contaminant discharges to air

AQ P9 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:

(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.

Comment:

The current Resource Consent RC62719 provides for protection of the mauri of the air and human health by specifying standards for the discharge of MB to air that must not be exceeded. The assessment in section 7 of the original AEE confirmed that these standards are being met, consistent with Objective AQ O1. Through the change to the operating environment brought about by the EPA Decision (HSR001635) the standards and exposure levels required by that decision continue to be met, and in fact exceeded the requirements, to comply with the limits required in 2031.

In addition, Genera has agreed with the local hapu and Whareroa marae that there will be a clear channel of communications between the marae and Genera to allow for access to the pipi beds in Te Awanui at times when ship holds are not being fumigated. Genera will advise the marae when ship hold fumigation using Phosphine is scheduled and the marae will advise Genera when kai moana collection is to be undertaken to provide for tangi.

Policy AQ P9(a) is given effect to by continuing to utilise the best available recapture technology and by undertaking ongoing research and development of that technology to achieve continuous improvement.

Policy AQ P9(c) is given effect to through compliance with the controls of HSR001635, HSR101529 and the other requirements of WorkSafe NZ. The fumigation area is contained and only Genera staff with the appropriate PPE are allowed within the defined area. Monitoring is undertaken to ensure that the level of VOCs in the atmosphere (including MB) are within the WES. In the event that monitoring indicates that contaminant levels are increasing the defined area is extended.

12.6 Tangata Whenua Management Plans

12.6.1 Tauranga Moana Iwi Management Plan 2016-2026

Section 104(1)(c) of the RMA provides local government authorities with a requirement to consider other matters that may be relevant when determining an application. The Tauranga Moana Iwi Management Plan, 2016-2026 is a joint environmental plan for Ngāti Ranginui, Ngāi Te Rangi and Ngāti Pūkenga. This is an iwi planning document and is thus a non-statutory document. This plan establishes a range of policies centred on different issues and can be broken into a number of key themes.

Section 5.4.8 of this plan covers fumigation procedures at the Port and states that: Tangata whenua are concerned by how chemicals are managed within fumigation practices and want assurance that safety to humans and the surrounding environment is provided.

The following table provides comment on the relevant polices identified under section 5.4.8 of the Tauranga Moana Iwi Management Plan.

Table 6: Tauranga Moana Iwi Management Plan

Policy Provisions (section 5.4.8)	Comment
4. For the health of the environment, the community and the staff involved in fumigation processes, to prohibit the use of methyl bromide.	The use of MB for export and import fumigations is not avoidable. Alternative fumigants are being used or have been approved for use by the EPA (Phosphine and EDN), alternative methods such as de-barking is also being used. Where possible alternatives are being implemented by the industry to avoid the use of MB consistent with Policy 4.
5. In the event that methyl bromide is used at the Port of Tauranga, this must be managed in such a way that harmful chemicals are at no time released	The use of MB for fumigations is managed through the mandatory compliance with the controls specified in HSR001635. Only approved handlers can undertake fumigations and specific allocated

Policy Provisions (section 5.4.8)	Comment
into the air or the harbour and must have an approved handler.	areas for fumigations are stipulated in the Port (Figure 1). Genera have committed to notifying the Whareroa Marae of any ship hold fumigations that are scheduled to occur (generally one per month) and the Whareroa Marae is to notify Genera of any tangi on the marae so that Genera can reschedule ship hold fumigations if required in order to allow pipi gathering in the harbour for the tangi.
6. That an Emergency Procedures Plan and a Safe Practice Plan is required and followed for any use of methyl bromide.	Genera's SOPs and Port of Tauranga Fumigation Procedures encompass the safety procedures for the use of fumigants. The SOPs include an Emergency Response Plan.
7. Stringent monitoring of the use of methyl bromide must be applied to prevent any occurrences of harmful chemical releases into Te Awanui	Stringent active monitoring is occurring during fumigations and the appropriate TEL and WES standards are being met As required by the controls in HSR001635, HSR101529 and the requirements of WorkSafe NZ.
Intended Action: *In the event that methyl bromide is used at the Port of Tauranga that safe methods of control are used to prevent any release of this toxic substance into the air or water. A Safe Practice Plan and an Emergency Procedures Plan is required for any use of this substance. An approved handler must be applied during any use of methyl bromide.*	These requirements are provided for through Genera's SOPs, the Port of Tauranga Fumigation procedures and the controls in HSR001635, HSR101529 and the requirements of WorkSafe NZ.

12.6.2 Ngāi Tukairangi and Ngāti Tapu Joint Iwi Management Plan 2014

This joint iwi management plan is designed to be informative for hapū members, councils and resource users and relates directly to ensuring that Ngāi Tukairangi and Ngāti Tapu values are acknowledged with respect to areas of significance or importance. Through developing the consent renewal application with the feedback from Ngāi Tukairangi the activity is consistent with the following policies of the Ngāi Tukairangi and Ngāti Tapu Joint Iwi Management Plan.

Table 7: Ngāi Tukairangi and Ngāti Tapu Joint Iwi Management Plan

Policy Statements	Comment
6.1.3 That suitable buffer zones exist where any spraying or application of toxic material does exist - to protect the health of the neighbouring community	The secure Port boundary and the extent of the Harbour Master's jurisdiction define the buffer zone boundaries around the Port operations. Fumigation within the Port must be undertaken to ensure that the controls of HSR001635 and HSR101529 are complied with for the fumigants that are being used. Active monitoring at the boundary of defined Risk Areas and monitoring at the Port boundaries assist in confirming compliance with these controls.

Policy Statements	Comment
6.2.1 That all resource consent applications that potentially impact on kai moana are avoided, remedied or mitigated	In terms of gathering kai moana, Genera have committed to notifying the Whareroa Marae of any ship hold fumigations that are scheduled to occur (generally one per month) and the Whareroa Marae is to notify Genera of any tangi on the marae so that Genera can reschedule ship hold fumigations if required in order to allow pipi gathering in the harbour for tangi. It is noted that MB is no longer used in the fumigation of ship holds.
6.4 That hapu are involved in the process as a Treaty partner for the allocation or use of airspace within our rohe	Ngāi Tukairangi and Ngāti Tapu seek to maintain and enhance the quality and utilisation of airspace above their rohe. To date, their capacity to make decisions on how this airspace has been utilised and exploited has been very limited. The hapu aims to become more involved in the decision making that impacts on the airspace within their rohe. Ngāi Tukairangi and Ngāti Tapu have been involved in the development of the consent renewal application and provided feedback on the FMP. They have been directly involved with the process and management procedures as engaged partners with Genera. This relationship will continue beyond the consent renewal process.

12.7 EPA Decision HSR001635

Little has changed in the statutory assessment of the application since the original application was made in October 2019 as the primary statutory documents remain unchanged since the application was made.

The only significant change has been the EPA Decision, HSR001635, which is an “other matter” that is “relevant and reasonably necessary to determine the application” (s104(1)(c), RMA).

One of the primary objectives of this application is to align the regional consent under the RMA with the national requirements of the EPA under the HSNO Act in order to avoid undue confusion for the operator and the consent authority when undertaking the fumigation operations.

Genera accepts that the EPA Decision with regard to the reassessment of MB has been thoroughly determined on the basis of comprehensive air modelling and the controls determined in the decision are a fair and reasonable reflection of the evidence that was presented to the EPA’s Decision-making Committee.

Compliance with those controls has required changes in the way fumigation under sheets using MB is carried out and Genera has transitioned to processes and systems that comply with those controls.

It is appropriate that, in relation to MB, this consent is able to rely on the controls imposed in the EPA Decision HSR001635 by reference and to focus on the management of fumigation activities on the Port through compliance with the controls of that decision, decision HSR101529, the requirements of WorkSafe NZ and Genera’s SOPs and the Port of Tauranga Fumigation Procedures.

13 Suggested conditions

The following section (Table 8) provides suggested conditions for this application. These conditions have been amended from the suggested conditions submitted with the October 2019 application and subsequent versions to take into account the controls introduced by HSR001635 and HSR101529 and changes made to the operations undertaken on the wharf, in particular in the utilisation of MB.

Table 8: Suggested Conditions

Condition No.	Condition
A resource consent:	**Pursuant to section 15(1)(c) and 15B of the Resource Management Act 1991 to Discharge Fumigants (Methyl Bromide, Phosphine, Ethanedinitrile), to Air** subject to the following conditions:
1 Purpose	
1.0	For the purpose of fumigation for quarantine and export and import requirements at the Port of Tauranga and for pest management (Phosphine). Such fumigations are limited to the following; • Logs under sheets • Logs in ships' holds (Phosphine) • Timber under sheets • Cargo in sheds and on-wharf under sheets • Shipping Containers and contents, including, but not limited to shipping containers, grain silos and other chambers used to contain materials that require fumigation for Quarantine and Pre-Shipment purposes and pest management. • Cargo (not including logs) in ships' holds.
2 Location	
2.0	The activity shall be undertaken: • At the Port of Tauranga Sulphur Point wharves (containers) and Mount Maunganui wharves and on ships berthed at those wharves, where necessary, as shown on Figure 1 of the Combined Application Report dated …… May 2022; • In the area zoned Port Zone (Bay of Plenty Regional Coastal Environment Plan, Planning Map 11ac) that is subject to the Tauranga Harbour Master's control, • In the area occupied by the Port of Tauranga in accordance with Section 384A RMA (Bay of Plenty Regional Coastal Environment Plan, Planning Map 11ac), and • In the Port Industry zone (Operative Tauranga City Plan). Subject to the limitations described in the conditions of this consent.
3 Map Reference	
3.0	At or about map reference NZMS 260 U14: 9232-8833
4 Legal Description	
4.0	**Mount Maunganui wharves** Lot 2 DPS 70440 SEC 18 64 65 110 112 120 PT SEC 139 PT LOT 94 PT 96 SEC 1 SO 58575 SECS 1 2 SO 58574 LOT 1 SO 58413 LOT 2 DPS 13237 LOT 1 PT 2 DPS 59388

Condition No.	Condition
	SEC 49 57 124 57 124 125 LOT 1 DPS 71578 LOT 1 PT LOT 2 DPS 70440 LOT 1 DPS 69395 LOTS 2-4 DPS 77433 LOTS 1-3 DPS 19876 SEC PT 1 PT 2 SO 58227 RCL 19 PT SEC 137 SEC 78 LOT 5 DPS 77433 LOT 1 DPS 87230 PT LOT 2 DPS 59388 PT SEC 25 BLK VII TAURANGA SD SEC 23 PT 25 SEC 1 SO 58567 PT SECTIONS 1 & 2 SO 58277 SEC 103 BLK VII TAURANGA SD SEC 54 BLK VII TAURANGA SD LOTS 1 & 2 DP 389860 SEC 107 BLK VII TAURANGA SD SEC 5 SO 439181 **Sulphur Point wharves** PT LOT 1 DPS 48736 and Crown Land (seabed)
5 Acronyms and Definitions	
5.1	**Acronyms** **BOPRC** Bay of Plenty Regional Council, the consent authority **EDN** ethanedinitrile, a fumigant currently being assessed by the Environmental Protection Authority (EPA) **EPA** the Environmental Protection Authority **MB** methyl bromide, a fumigant approved by the EPA for use as a Quarantine and Phytosanitary agent for biosecurity purposes **PID** photoionization detector, a device for measuring Volatile Organic Compounds **ppb** parts per billion, a measure of gas concentration **PPE** Personal Protection Equipment **ppm** parts per million, a measure of gas concentration **RA/SWZ** Risk Area/Safe Work Zone **SOP** Standard Operating Procedures **STMP** Safe Traffic Management Plan. A plan that defines the outer boundary of the RA/SWZ and excludes occupational bystanders and traffic from entering the RA/SWZ **TEL** Tolerable Exposure Limit, the limit of gas concentration to which the public may be exposed without suffering risk to health as measured in 1 hour and 24 hour averages (acute risk) and annual average (chronic risk) **TVOC**: Total Volatile Organic Compounds. Most monitoring equipment used by Genera measure the concentration of TVOCs in the atmosphere. MB is one of a number of TVOCs measured at any one time. **WES** Workplace Exposure Standard. A standard (established under the Health and Safety in Employment Act and enforced by WorkSafe NZ) that is not to be exceeded outside the boundary of the RA/SWZ. At the time of this application the standard for MB is the time

Condition No.	Condition
	weighted 8-hour average concentration of methyl bromide of 5ppm (19mg/m3) The list of acronyms has been amended to only include those used in the conditions.
5.2	**Definitions** **Active monitoring** means measuring gas concentrations at the locations identified in the FMP in real-time either by manual or automated systems **Adaptive management** means responding to real-time active monitoring by adapting the release of gas during the ventilation procedure by either decreasing or increasing the quantity of gas being ventilated or altering the size/shape of the RA/SWZ. **Annual average recapture performance** means the average reduction of MB per fumigation event for which recapture technology is used, for a given site at which quarantine or pre-shipment fumigation occurs using MB (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 from which non-occupational bystanders (the public) are excluded. In relation to this consent it shall not extend beyond the landward boundary of the secure area of the Port of Tauranga or 50m seaward of any ship berthed at the Port of Tauranga. **Container** means anything used to contain methyl bromide during fumigation, except a ship's hold or sheet. **Minimum recapture** means the minimum reduction of MB from the maximum amount of MB in the enclosed space that must be achieved for a fumigation event. **Risk area / Safe Work Zone** means an area around the fumigation enclosure that for the duration of the fumigation prior to ventilation is under the control of the fumigator. No persons other than authorised fumigator staff wearing appropriate PPE may enter the risk area. Additional definitions provided from the EPA Decision. **Standard Operating Procedures** means the work instructions used by Genera staff to undertake fumigations at the Port of Tauranga.
A. Fumigation by Methyl Bromide	
A.0	Fumigation using MB shall be undertaken in accordance with EPA Decision HSR001635 or any subsequent reassessment of the use of MB undertaken by the EPA. Where there may be a conflict between the controls of the EPA Decision HSR001635 (or any subsequent EPA decision on MB), the conditions of this consent and the controls of the EPA Decision HSR001635 (or any subsequent EPA decision on MB), shall apply. Note: MB will not be used in ship hold fumigations
A.1	**Standards and Controls**
A.1.1.	The consent holder shall ensure that the concentration of MB at or beyond the landside boundaries of the Port of Tauranga wharves or at or beyond a point 50m seaward of any vessel berthed at the Port of Tauranga does not exceed the following limits:

Condition No.	Condition			
		Acute (1 hour average)	Acute (24 hour average)	Chronic (Annual)
	Volume based (ppb)	1000	333	1.3
	Mass based (mg/m^3)	3.9	1.3	0.005
A.1.2.	The consent holder shall monitor MB levels downwind of fumigation events. Levels shall be measured at the closest suitable and accessible location. Monitoring shall be undertaken to enable compliance to be determined with condition A.1.1 and EPA Decision HSR001635.			
A.1.3.	The consent holder shall implement the recapture of MB in accordance with the controls and Tables A, B and C of HSR001635.			
A.2	**Restrictions**			
A.2.1.	The consent holder shall undertake its best endeavours to ensure that no ventilation of MB shall occur when wind speed is less than 2 m/s. NOTE: Best endeavours may include consulting a reliable weather forecast prior to ventilation as well as recording windspeed at the site of the fumigation event recognizing that site specific circumstances may occur. It is further recognized that weather prediction is not an accurate science and despite best endeavours being undertaken wind conditions may change during the period of a ventilation.			
A.2.2.	Covering of goods for fumigation shall not take place if the wind speed is in excess of 25 knots (13m/s).			
A.2.3.	The consent holder shall ensure that the tarpaulins used for fumigation are maintained in good working condition without any rips or tears, to the satisfaction of the Chief Executive of the Regional Council or delegate.			
A.3	**Monitoring**			
A.3.1.	The consent holder shall monitor MB levels in general accordance with the controls of EPA Decision HSR001635			
A.3.2.	The consent holder shall keep records as required by the controls of EPA Decision HSR001635, which shall be made available to the BOPRC on request.			
A.3.3.	All devices used for monitoring shall be calibrated in accordance with the manufacturers' specifications. The consent holder shall maintain this monitoring equipment in good working order and provide copies of the calibration certificates for all monitoring equipment to the Bay of Plenty Regional Council on request.			
A.4	**Response Mechanisms**			
A.4.1.	**Adaptive Management** For ventilation of fumigation under sheets or from containers: The rate of removal of tarpaulin covers, or opening of containers and the location of the RA/SWZ boundary shall be determined by real time recording of TVOC gas concentration at the boundary of the RA/SWZ. The RA/SWZ boundary is adjusted to define an area where instantaneous TVOC gas concentration is less than approximately 15 ppm. Tarpaulin removal or container ventilation shall be stopped or slowed while the RA/SWZ boundary is being adjusted,			
A.4.2.	In the event of any exceedance of the 1-hour average TEL_{air} and/or the 24-hour TEL_{air} the consent holder shall a) Notify the BOPRC, via the Regional Council's Pollution Hotline, or directly to the BOPRC Compliance Officer responsible for the fumigation event, of the exceedance as soon as practicable and within 24 hours, and			

Condition No.	Condition
	b) Shall include in the notification – (i) the source of that exceedance; and (ii) the exposure value(s) that exceed the appropriate TELair value: and (iii) the individual monitoring values that were used to generate each relevant 1-hour or 24-hour exposure level.
A.5	**Reporting**
A.5.1.	The consent holder shall keep accurate records for every fumigation event in accordance with the controls of EPA Decision HSR001635.
A.5.2.	The consent holder shall prepare an annual report in accordance with the controls of EPA Decision HSR001635, which it shall provide to the BOPRC at the same time as it is provided to the EPA.
B. Fumigation by Phosphine	
B.1	**Standards and Controls**
B.1.1.	The consent holder shall monitor the area around the ship holds for phosphine leaks before disembarkation to ensure that the concentration of phosphine in the atmosphere at the RA/SWZ boundary does not exceed 0.3ppm.
B.2	**Response mechanisms**
B.2.1.	In the event of any inadvertent or uncontrolled release of Phosphine the consent holder shall notify the BOPRC, via the Regional Council's Pollution Hotline, or directly to the BOPRC Compliance Officer responsible for the fumigation event, of the exceedance as soon as practicable and within 24 hours, and shall include in the notification the source of that release, the extent of the area impacted and the concentration of Phosphine in air resulting from the release.
B.3	**Recording/Reporting**
B.3.1.	The consent holder shall keep accurate records for every fumigation event. The data to be recorded is to include: a) Date and time of each application and ventilation to atmosphere b) Amount of Phosphine applied c) A record of the ship's name and holds fumigated. d) Capacity (or dimensions) of the enclosed space fumigated e) Name of person/s using Phosphine. f) Exposure levels for each monitoring location g) The type and identifying features e.g. serial number, for equipment used for monitoring exposure levels. h) The volumes of Phosphine used monthly These data shall be made available to the Bay of Plenty Regional Council, on request, electronically for each calendar month within 10 working days of the end of the month.
B.3.2.	The consent holder shall keep accurate records of all complaints made to Genera related to fumigation. This shall be made available to BOPRC on request of the Chief Executive or delegate of the Regional Council.
B.3.3.	No later than 30 June for each year for the duration of this consent the consent holder shall submit to the Chief Executive (or delegate) BOPRC annual reporting of Phosphine use aggregating and summarising the data recorded under condition B.3.1.
C. Fumigation by Ethanedinitrile (EDN)	

Condition No.	Condition
C.0	Fumigation using EDN shall be undertaken in accordance with EPA Decision HSR101529 or any subsequent reassessment of the use of EDN undertaken by the EPA. Where there may be a conflict between the controls of the EPA Decision HSR101529 (or any subsequent EPA decision on EDN), the conditions of this consent and the controls of the EPA Decision HSR101529 (or any subsequent EPA decision on EDN), shall apply. NOTE: EDN must only be used as a fumigant for logs or timber for export under a sheet or in a shipping container.
C.1	**Standards and Controls**
C.1.1.	The consent holder shall ensure that the concentration of EDN at or beyond the landside boundaries of the Port of Tauranga wharves or at or beyond a point 50m seaward of any vessel berthed at the Port of Tauranga does not exceed the following limit: $TEL_{24\text{-hour}}$ 34 ppb
C.2	**Restrictions**
C.2.1.	The consent holder shall undertake its best endeavours to ensure that no ventilation of MB shall occur when wind speed is less than 2 m/s. NOTE: Best endeavours may include consulting a reliable weather forecast prior to ventilation as well as recording windspeed at the site of the fumigation event recognizing that site specific circumstances may occur. It is further recognized that weather prediction is not an accurate science and despite best endeavours being undertaken wind conditions may change during the period of a ventilation.
C.2.2.	Covering of goods for fumigation shall not take place if the wind speed is in excess of 25 knots (13m/s).
C.2.3.	Covering of goods for fumigation shall not take place if the wind speed is in excess of 25 knots (13m/s).
C.2.4.	The consent holder shall ensure that the tarpaulins used for fumigation are maintained in good working condition without any rips or tears, to the satisfaction of the Chief Executive of the Regional Council or delegate.
C.3	**Notification**
C.3.1.	Not less than 24 hours before the start of a fumigation event using EDN the Consent Holder shall notify the intention to carry out the fumigation to the Chief Executive or delegate of the Bay of Plenty Regional Council.
C.3.2.	The Consent Holder shall notify the BOPRC as soon as practicable and within 24 hours if the exposure level exceeds the TEL value for EDN and shall include in the notification— a) the source of that exceedance; and b) the exposure value(s) that exceed the TEL value: and c) the individual monitoring values that were used to generate each relevant 24-hour exposure level.
C.4	**Reporting**
C.4.1.	The consent holder shall prepare an annual report in accordance with the controls of EPA Decision HSR101529, which it shall provide to the BOPRC at the same time as it is provided to the EPA.
D All Fumigations	
D.1	The consent holder shall keep accurate records of all complaints made to Genera related to fumigation. This shall be made available to BOPRC on request of the Chief Executive (or delegate) BOPRC.

Condition No.	Condition
E	**Review**
E.1.	The Regional Council may, within six months of any impact, compliance or environmental investigation report carried out by the Regional Council which shows an adverse environmental effect, serve notice on the consent holder under s.128(1)(a) of the Resource Management Act 1991 of its intention to review the conditions of this consent. The purpose of such a review is to assess the need for further monitoring of discharges from the sites, and to impose monitoring and discharge control conditions if appropriate.
E.2.	The Regional Council may, within six months of the authorisation of any alternative fumigant for quarantine and phytosanitary purposes by the Environmental Protection Authority, serve notice on the consent holder under s.128(1)(a) of the Resource Management Act 1991 of its intention to review the conditions of this consent. The purpose of such a review is to assess the need for changes to the conditions of this consent to implement the Environmental Protection Authority's authorisation if appropriate.
F	**Duration of consent**
F.1.	This consent shall expire on xxxx (10 years from the date of commencement of this consent)
G	**Resource Management Charges**
G.1	
Advice Notes	
AN.1	The consent holder is required to comply with all other statutory requirements and obligations including (but not limited to) the Hazardous Substances and Natural Organisms (HASNO) Act and the Health and Safety in the Workplace (H&SW) Act.

14 Conclusion

Genera applied to renew its existing Resource Consent RC62719 to discharge contaminants to air from the Port of Tauranga in October 2019. Since that date the EPA has issued its decision on a reassessment of the use of MB in New Zealand also approved the use of EDN in New Zealand. Genera do not currently use EDN but include it in this consent as it provides another fumigant that may be used to replace MB in the future thus reducing the use of Ozone Depleting Gases consistent with policy direction.

These decisions have had a significant impact on Genera's operations at the Port of Tauranga and it is considered appropriate to bring together a description of those changes and, where relevant, changes to this application.

In our opinion the changes remain within the scope of the application because the substance of the application remains as it was originally applied for including MB, Phosphine and EDN and the effects of the changes are less than were previously assessed as a result of the controls in the EPA decisions and the consequential changes to Genera's operating procedures.

One of the consequences of the EPA decision on MB and the changes that have been implemented is that the activity is now considered to be a discretionary activity under Rule AQ R20 (was non-complying). The proposal remains consistent with the relevant objectives and policies of the Bay of Plenty RPS, RAP and the RNRP and meets the recapture requirements for MB of the EPA Decision HSR001635 for 2031 which exceeds the requirements of the RAP.

The potential adverse effects of the discharges to air are identified as relating to ozone depletion (for MB), health effects and cultural effects.

The potential adverse effects of these activities and proposed mitigation measures have been addressed in this AEE and include:

- Effects on the ozone layer of MB – mitigated through the implementation of recapture technology that achieve the control measures of HSR001635 for 2031, and the inclusion in this application of other non-ozone depleting fumigants;
- Effects on the health of occupational and non-occupational bystanders – mitigated through active monitoring to ensure the continued adherence to the established TELs and WES criteria and compliance with HSR001635, HSR101529 and the requirements of WorkSafe NZ in relation to Phosphine;
- Effects on the cultural role of the Whareroa marae, the associated Iwi and hapu and the health and wellbeing of their people.

In our opinion it is most effective and efficient that the consent adopt the controls of the EPA Decisions and to provide for joint reporting. It is noted that the EDN Decision effectively does this by requiring fumigators to report to the Territorial Authority as a specific control. This approach avoids duplication of reporting obligations while maintaining the monitoring and recording requirements required to meet the reporting obligations.

In summary, adverse effects associated with Genera's discharge activities can be managed by appropriate control measures on the site with continued active environmental monitoring and adaptation if necessary. Implementation of the measures proposed in the suggested conditions will ensure that any adverse effects associated with discharge activities will be no more than minor.

There will also be considerable positive effects of continued exportation of forestry and other goods that are required to be fumigated and protection of the New Zealand international border from biosecurity risks.

Based on this assessment it is considered that a resource consent can be granted for the proposal, subject to proposed conditions pursuant to sections 104B and 108 of the RMA.

A

Appendix A – Existing Consents