



Application Form: HS8 Application for whether there are Grounds for a Reassessment of a Hazardous Substance

under section 62 of the Hazardous Substances and New Organisms Act 1996

Send by post to: Environmental Protection Authority, Private Bag 63002, Wellington 6140
OR email to: HSApplications@epa.govt.nz
Payment must accompany application; see our fees and charges schedule for details.

Applicant:

STAKEHOLDERS IN METHYL BROMIDE REDUCTION INC (STIMBR)

Date:

October 2017

APPLICANT CHECKLIST

Mandatory sections filled out

Appendices enclosed

Fees enclosed

Signed and dated

OFFICE USE ONLY

Application code

Date received

EPA contact

Fees paid \$

Application version no.

Important

1. Before you fill in this application form, please talk to the EPA. We can help you scope and prepare your request.
2. We need all relevant information early on in the process. Quality information up front will speed up the process.
3. Any extra material that does not fit in the form should be clearly labelled and cross-referenced. If there is commercially sensitive information, it should be collated in a separate document.
 4. All applicants must sign the form at the end of Part A and enclose the correct application fee. Please check the EPA's current pricing policy: <http://www.epa.govt.nz/about-us/fees/Pages/Hazardous-Substances-fees-schedule.aspx>. We are unable to process applications that do not contain the correct fee.
5. Copies of all our application forms are available on our website: <http://www.epa.govt.nz>.
6. If you have any suggestions for improvements to this form, please contact our operations staff at the address below.
7. You can get more information at any time by telephoning, writing to, or calling in at our Wellington office. One of our staff members will be able to help you.

Environmental Protection Authority
Private Bag 63002
Wellington
New Zealand
Telephone: 64 4 916 2426
Facsimile: 64 4 914 0433
Email: HSApplications@epa.govt.nz
<http://www.epa.govt.nz>

1. Applicant details

This should be the organisation or person formally responsible for this application, and be located within New Zealand.

Name: STAKEHOLDERS IN METHYL BROMIDE REDUCTION INC (STIMBR)

Address: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Postal address:

[REDACTED]

1.2. Contact's details (if different from above).

Name: [REDACTED]

Address: [REDACTED]

Phone: [REDACTED]

Email: [REDACTED]

2. Hazardous substance details

2.1. Name of substance (identify the substance as fully as possible).

If more than one substance is involved – for example, the active ingredient and the products – they should all be listed.

Methyl bromide a fumigant

2.2. If the substance has been assessed by the authority, list the reference number(s) of the existing approval (from the authority's register).

If more than one substance is involved, for example, the active ingredient and the products, they should all be listed.

Methyl bromide and formulated substances containing methyl bromide

Application Number: HRC08002

Reassessment Decision 2010

2.3. If the substance is covered by Parts XI to XV, list any reference numbers of registrations, licenses etc under the Explosives Act, Pesticides Act, Toxic Substances Act, Dangerous Goods Act or Animal Remedies Act.

3. Grounds for reassessment

3.1. Please indicate which category applies.

More than one may be relevant.

Has significant new information relating to the effects of the substance become available?

No

Has another substance with similar or improved beneficial effects and reduced adverse effects become available?

No

Has information showing a significant change of use of the substance become available?

No

Has information showing a significant change in the quantity of the substance manufactured or imported become available?

✓ Yes (go to question 3.5)

Other?

✓ Yes (go to question 3.6)

3.2. Provide details of the significant new information relating to the effects of the substance. (Include the date and some of the information.)

Further information? Yes No

Commercially sensitive information? Yes No

3.3. Provide details of the information relating to the effects of the new substance (include the date and some of the information). The beneficial and adverse effects of the new substance should be compared with those of the substance.

Further information? Yes No

Commercially sensitive information? Yes No

3.4. Provide details of the significant change of use of the substance (include the former use and information on how this change has come about).

Further information? Yes No

Commercially sensitive information? Yes No

3.5. Provide details of the significant change in the quantity of the substance manufactured or imported.

Methyl bromide is used in significant volumes in NZ to fumigate logs for export as required by our trading partners, most notably India and China. Currently the log trade (with a total annual value in excess of \$2B – not all of which is treated with methyl bromide) uses around 550 tonnes of methyl bromide annually.

New Zealand methyl bromide use data 2010-2015

Period: 2010 to 2016

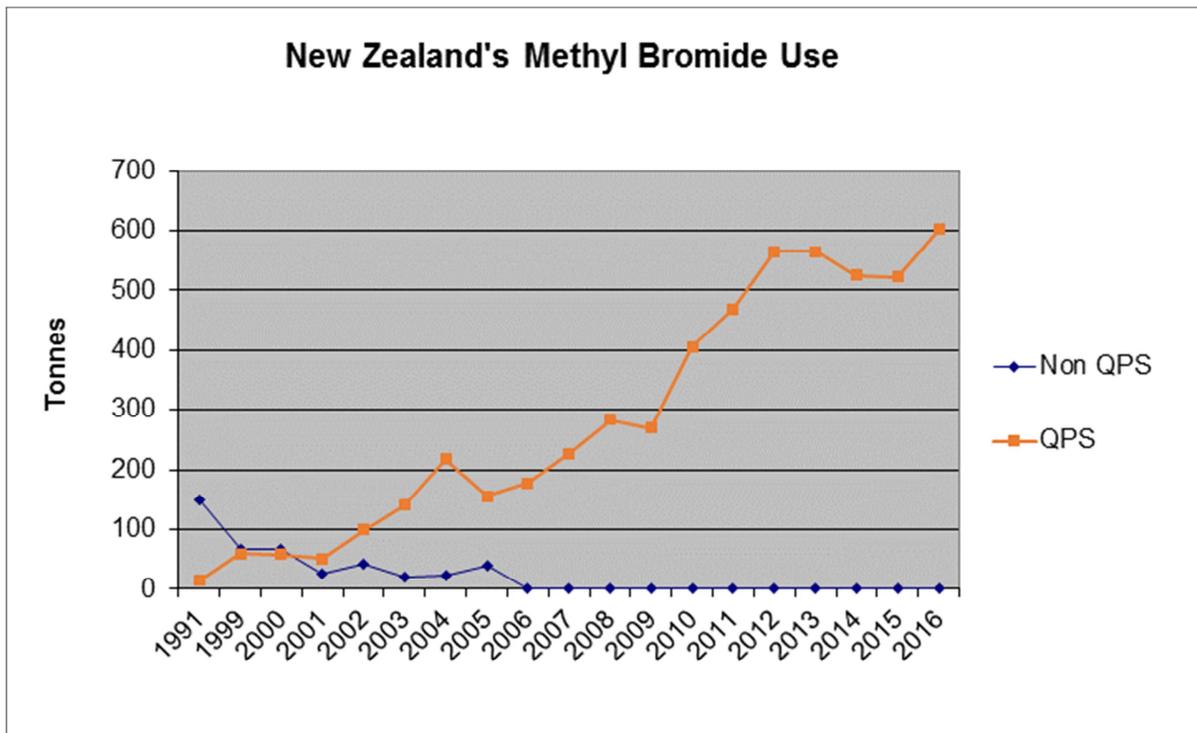
Database last updated: 20th October 2017

Annex E Group I (Methyl Bromide)

Country Name	2010	2011	2012	2013	2014	2015	2016
New Zealand	406.4	469.1	564.7	565.15	519.9	522	601.8

Note:

- NZ figure not officially reported to the Minister
- Data is available on the Ozone Secretariate web page.
- NZ has dropped a place in world ranking from 5th to 6th
 - assuming China reporting a similar amount to 2015; and,
 - India reporting a dramatic increase in reported use.
- New Zealand's use increased 15% over the previous year
- Increase use in New Zealand attributable to the 16% increase in logs to China and 6% to India.



3.6. Provide details of other reasons requesting a reassessment.

A decision released in 2010 following the re-assessment of the use of methyl bromide requires all fumigations using methyl bromide to be “*subject to recapture technologies*” with the following clauses in the decision describing the controls relating to recapture:

16.1.4 *The Committee also notes that, as an ozone depleting substance, methyl bromide causes indirect effects on public health and the environment. To address these effects, the Committee is requiring all methyl bromide fumigations to be subject to recapture technology within 10 years.*

16.1.6 *In addition, the Committee strongly recommends that more research is undertaken into alternative methods of treatment, reducing the amount of methyl bromide required, and recapture and disposal of methyl bromide*

16.1.7 *In order to monitor the progress of the introduction of recapture technology, the Committee will require all fumigators using methyl bromide to submit an annual report to the Agency outlining the progress that they are making in introducing recapture technology.*

16.11.48 *The Committee invited responses from submitters and stakeholders to a proposed timetable and after consideration of these concluded that:*

- *While the recapture of methyl bromide used in shipping container fumigations is technically proven and is operational in some circumstances, its mandatory introduction in places where large numbers of containers are fumigated will have significant logistical and economic impacts.*

- *It will be some time before equipment is available to recapture methyl bromide used in ship hold fumigations; and*
- *The technology for recapture of methyl bromide from fumigations under sheets is still being developed.*

16.11.49 taking these conclusions into account, the Committee remains of the view that the use of recapture technology is a desirable outcome and decides that all methyl bromide used in fumigation activities in New Zealand should be subject to recapture technology within 10 years from the date of this decision.

The 2010 decision could be no more specific than the requirement quoted above as there were no large scale technologies available at that time to facilitate the re-capture of methyl bromide left in the headspace following fumigation. It was however thought that by the required date of October 2020, such technologies would have been developed and be available for use.

Since that time, STIMBR (Stakeholders in Methyl Bromide Reduction) have vigorously pursued a programme of research. Several themes have been pursued with the intent of reducing, or removing the need for methyl bromide. Additionally where methyl bromide remained the only option complimentary lines of enquiry have been followed. This strategy was designed to identify technologies that had been validated and proven that could adequately recapture methyl bromide remaining in the headspace following large scale fumigation as occurs with export log stacks.

The work undertaken in the last 7 years to allow the industry to comply with the EPA's requirements includes:

- A comprehensive literature review seeking alternatives chemical and physical phytosanitary treatments to methyl bromide – only one suitable chemical candidate emerged from that work.
- Initiating projects to explore possible processes and technologies to recapture methyl bromide left in the headspace on completion of fumigations.
- Developing reputable published research supporting the use of lower application rates of methyl bromide for fumigation with no loss of efficacy, which alone has the potential to reduce methyl bromide use by some hundreds of tonnes per year.
- Identifying EDN as the only potential alternative fumigant (that could replace methyl bromide), and from there, developing an efficacy data set to support the use of EDN. An application for the registration of EDN for use in NZ has been lodged with the EPA (July 2017).
- Supported research into alternative physical treatments including physical debarking of logs and Joule Heating (the use of electrical current to kill insects).
- Completed validation testing on several possible 'recapture and/or destruction' technologies, with to date only one showing an ability to recapture a significant proportion of the methyl bromide remaining in the head space.
- Carried out an intensive national 4 year insect trapping programme to determine flight activity and hence periods of low pest prevalence which could support periods where fumigation is not required.

- Debarking is not a phytosanitary treatment. China accepts the use of debarking as a risk reduction measure. India has not approved debarking as a risk reduction measure and are unlikely to. Studies have been undertaken to determine if tree harvesting heads are capable of debarking to achieve the required standard. Further development work of the harvesting heads is needed if logs are to be debarked in the forest at the point of harvest. Not all logs are suitable for debarking this is influenced by factors including diameter, grade and season. For instance logs are harder to debark at certain times of the year. Additionally modelling has determined that stationary debarking [i.e. out of the forest] costs are significantly higher than the current fumigation treatments. Handling costs and cartage contribute to the cost of stationary debarking. Moreover, there is currently no market nor means of economically viable disposing of the waste that would be generated by stationary debarkers outside of the forest.

STIMBR notes that none of the potential solutions identified will singularly provide a solution that addresses the all of the challenges we face. Two major challenges lie in the way of a direct reduction in methyl bromide use, these being the willingness or otherwise of our trading partners to 1) accept alternative treatments (eg Joule Heating or EDN) and 2) to accept reduced application rates for methyl bromide (which is particularly applicable to the trade with China and to a lesser extent India). Initial discussions have commenced with the Chinese government. EDN is reliant on the successful registration of EDN which will permit use in New Zealand, the completion of the efficacy data [mid 2018]; and approval from our trading partners to use EDN as a phytosanitary treatment.

The current situation the forestry sector faces is a rising volume of logs likely to be harvested and exported over the next decade with no alternative markets or treatments available. To further compound the problem, reliable recapture/destruction technology which can be applied at the scale of log stacks immediately to meet the EPA controls as written is not available.

While claims are made that different technologies are suitable for recapturing and / or destroying methyl bromide few are able to substantiate the claims with independent validation testing. Development of the Joule heating technology is progressing well and is now at the stage where a full scale prototype can be constructed. Similarly a proposed recapture system identified and assessed in a desk top study will need to be proven through the construction of a prototype. Investors are required. In both instances success cannot be guaranteed.

In light of this situation, the likelihood of being able to directly reduce the amount of methyl bromide being used annually within the timeframe of the 2010 decision is considered low, but continues to be pursued as rapidly as the preparation of the required efficacy data testing and consequent bi-laterals negotiations [which require robust efficacy data] allows. Moreover; there is no guarantee that the regulatory consents for use of EDN here in New Zealand or the approval of importing country governments to its use for log fumigation treatment can be achieved by the end of October 2020.

This then means the forest product export sector [particularly logs] will remain reliant on the use of methyl bromide for the foreseeable future. In turn this requires continued development of potential recapture/destruction technologies. STIMBR recently commissioned a review of the technologies that are available and those being developed which identified only one system that has been shown to achieve significant gains in recapturing methyl bromide from the head space following fumigation. The reviewer [Dr Jack Armstrong] noted that while the Genera technology is already in use, considerable developmental and refinement work is required to do to scale it to the point where it can be used in-

conjunction with all methyl bromide fumigations conducted in New Zealand to the standard currently required by the EPA 2010 controls. The greatest challenge is achieving the complete recapture of all methyl bromide remaining in the head space at the end of fumigation while another [shared with other systems] is disposing of the residues generated by the recapture process. These considerations continue to be worked on.

Following Dr Armstrong's review [which included reviewing Genera research data] STIMBR is confident that the Genera system is capable of recapturing the majority of the methyl bromide remaining in the headspace following fumigation in a manner that is safe, relatively efficient and is capable of being utilised routinely and is cost effective. STIMBR is also supporting and encouraging the developer to continue refining the system to improve efficacy, reduce cost and to find an acceptable answer to disposal of the waste stream.

While STIMBR is supportive of this technology [because there is evidence of its ability to effectively destroy methyl bromide], STIMBR continues to be willing to examine and if appropriate validate other systems.

The 2010 decision has resulted in a lot of work being completed seeking to either find alternatives for methyl bromide or to be able to recapture and destroy the molecule from the headspace. From this work, the process of absorption and desorption from logs is much better understood [while continuing to present a challenge during the recapture/destruction process], the ability to achieve the same levels of control using lower rates of methyl bromide has been proven, an alternative fumigant (EDN) has been identified and work on efficacy data sets is well advanced, alternative non-fumigant treatments have been identified. In addition, a single destruction technology has been developed to the point where it is now being used operationally.

The industry has made and is able to demonstrate considerable progress with reducing methyl bromide treatment rates and the ability to recapture much of the gas remaining after fumigation. EDN offers a real possibility of an alternative to methyl bromide but there is no certainty it will be approved by New Zealand regulators and accepted by trading partners within that timeframe.

In order that we may ensure priorities for the next 3 years are correctly focused and that we are clear on EPA's position in respect of the 2010 methyl bromide reassessment decision, we request that EPA examine the evidence now available and determine a set of controls based on the evidence.

Review of potential technologies

A high-level review of methyl bromide recapture and destruction technologies (MBRDT) was carried out to inform the STIMBR Board on their potential use by the New Zealand log export industry to meet the Environmental Protection Authority MB recapture and destruction goals by 1 October 2020.

The review found that neither electric arc (plasma) technology or ozone were applicable as MBRDT, and that MBRDT that use activated carbon (a solid MB sorbent) or ammonium thiosulfate (a reactive liquid sorbent that destroys MB) or a combination of both were cost prohibitive or not amenable to port operations and log fumigations. None of the companies using activated carbon and/or ammonium thiosulfate were engaged in current research programs relevant to the needs of the New Zealand log export industry for meeting the reassessment controls coming into effect in 2020.

One company, Genera, was unique in having both a potentially viable MBRDT and a current research and development program specific to the New Zealand log export industry.

Validation testing - Genera

A test of the system developed by Genera Ltd occurred at the Port of Tauranga, New Zealand on 3-4 June 2015. Testing of the system was determined after fumigation of pine logs (average volume 350 JAS = enclosure volume of approximately 420 m³) with 120 g/m³ methyl bromide for 16 h under tarpaulin. Fumigation of the logs was done by Genera Ltd, using commercial practices and equipment used for log exports.

After 16 h the fumigation was ended, scrubbing trial began after another 4 hours at which point ~95 g/m³ of methyl bromide remaining in the treated headspace. The air was mixed under the tarpaulin until the concentration remained constant for 6 measurements i.e. for 30 minutes the concentration was 95 g/m³ ± 2. Then the system was started with the analysis of air samples entering and exiting the destruction system at 5 minute intervals for 8 h. The system was set up and operated as intended by Genera Ltd for commercial purposes i.e. the destruction of methyl bromide after commercial fumigation of pine logs. The concentration of methyl bromide under the tarpaulin was reduced by 87% of the initial concentration after 8 h, meaning that the Genera Ltd system is able to destroy the majority of methyl bromide remaining at the end of the fumigation period. The contribution made by gas desorption to this remaining 13% is not known.

3.7. Provide any other information relevant to the request for reassessment.

Further information:

Refer attached reports:

Armstrong et al 2014 *Comprehensive literature review of fumigants and disinfestation strategies, methods and techniques pertinent to potential use as quarantine treatments for New Zealand export logs* Plant and Food Research

Armstrong J 2017 *Review of Proposed Concepts and Technologies to Recapture and Destroy Residual Methyl Bromide (MB) after Log Fumigations at New Zealand Ports* Quarantine Scientific Limited

Refer also to the presentations delivered during key stakeholder briefings during August 2017.

1. http://www.stimbr.org.nz/uploads/1/4/1/0/14100200/05_briefing_review_proposed_concepts_and_technologies_jack_armstrong_quarantine_scientific.pdf
2. http://www.stimbr.org.nz/uploads/1/4/1/0/14100200/06_briefing_genera_recapture_and_destroy_tech_mar_k_self_genera.pdf
3. Related presentations provided during those briefings when the application for the registration of EDN in New Zealand was announced <http://www.stimbr.org.nz/our-news.html>

4. Declaration



20 October 2017

Signature of applicant or person
authorised on behalf of applicant

Date

