



WORKSAFE

Mahi Haumaru Aotearoa

Working Together on Health and Safety

***APP203660 methyl bromide
reassessment hearing***

Philippa Gibson, Paul Moenboyd

11 August 2020

1 WorkSafe's Role in Hazardous Substance Applications



Legislative framework for hazardous substances

- **Under HSWA** (requirements for work with hazardous substances)
 - *Health and Safety at Work (Hazardous Substances) Regulations 2017*
 - *Health and Safety at Work (General Risk and Workplace Management) Regulations 2016*
 - Safe work instruments (SWI)
- **Under HSNO** (requirements for the import and manufacture of hazardous substances, and to protect public health and environment)
 - EPA controls
 - EPA notices
 - Substance approvals and reassessments
 - Regulations



Consideration

WorkSafe's role in hazardous substance applications to the EPA

- Work with and support the EPA.
- Provide advice about whether the risks from work with hazardous substances can be managed adequately by existing regulations.
- If not, and if the regulations allow, develop additional or modified requirements in SWI for the Minister's consideration.

We considered the requirements for methyl bromide in the HSW Hazardous Substances Regulations, and the associated SWI provisions.

- It's unclear whether the SWI provisions are relevant, particularly to requirements set by the EPA, such as buffer zones for the public or recapture requirements.
- Once the reassessment is complete, we'll consider what the decision means for the overall framework, including the HSW Hazardous Substances Regulations and any SWI.
- We can provide operational advice to the Ministry of Business, Innovation and Employment (MBIE) on the HSW Hazardous Substances Regulations.



Safe Work Instruments (SWI)

– Health and Safety at Work Act Section 227 and 228

- Developed by WorkSafe, but must undergo public consultation and be approved by the Minister.
- Can define terms, prescribe matters and make other provision in relation to any activity, including the control of substances, but only have legal effect if referred to in regulations.

– SWI can be used to add to or modify requirements in regulations, but:

- are subordinate to the regulations,
- must be consistent with the regulations,
- are restricted by the scope of their referring provision.

– They should also:

- advance the purpose of HSWA,
- be in line with WorkSafe's strategic goals,
- be based on evidence and a consideration of other available interventions,
- be proportionate, and take into account the impacts of the SWI.



Methyl bromide

- **There are SWI provisions in:**

- Part 13 of the HSW (Hazardous Substances) Regulations, in the requirements for class 6 and 8 (toxic and corrosive) substances.
- in Part 14, in the requirements for fumigants.

- **HSW (Hazardous Substances) Regulations Part 13 - Class 6 and 8 Substances**

- There is a SWI provision in Part 13, which allows for additional and modified requirements in a safe work instrument for class 6 and 8 (toxic and corrosive) substances.
- But we would also need to consider any other specific provisions in the regulations for methyl bromide, and any controls from the current reassessment.



Safe Work Instrument provisions in Part 14

- While there are a number of SWI provisions for in part 14 of the regulations (for fumigants), they may not be relevant to this reassessment, and deal with matters such as:
 - certified handler and controlled substance requirements
 - notification and signage requirements
 - restrictions on the use of shipping containers
 - requirements for the ventilation of fumigation area and safety of risk area
 - record keeping requirements
 - allowing for an alternate fumigation method to be specified.
- Once the reassessment decision is complete, we will consider the impact for any requirements enforced by WorkSafe.

2 Methyl bromide project

WorkSafe's methyl bromide project

1. Measurement (monitoring) of ventilation
2. Predictive modelling for those events
3. At boundary of Port of Tauranga, or on site

Objective

Comparing actual monitoring data with various models to help identify which is the most appropriate model to predict the dispersion of gas

1-hour averages, 24-hour averages, TVOC every 3 seconds



WorkSafe's methyl bromide project

1. SUMMA Canister

- Specific to methyl bromide
- Analysis by GC-MS
- Limit of quantification 0.5 ppb
- Takes a 1-hr or 24-hr sample

2. Photo ionisation detector (PID)

- Non-specific (picks up other gases)
- Result is TVOC (total volatile organic compounds)
- Direct reading and data logging
- Detection limit 1 ppb



- ✓ **Side by side**
- ✓ **Allows comparison of TVOC vs methyl bromide results**



WorkSafe's methyl bromide project

10 fumigation events to date

- Three/four 1-hour averages (both PID and Summa), and one/two 24-hr averages per event
 - 1 ship (5 holds)
 - 9 log fumigations – number of stacks : 7, 6, 11, 5, 7, 4, 2, 2, 3
 - Total of **88** samples (71x1-hour, 17x24-hour)
 - Most at the boundary, some within the port (23% on port)
-
- Slow progress due to Covid, wind direction, shipping schedules
 - Limitations – outdoor sampling, spot sampling, variable speed of tarpaulin removal, variable weather and wind, variety of fumigation locations, amounts of gas, recapture levels

WorkSafe's methyl bromide project

Results from monitoring

- No measured exceedances of the 24-hour or 1-hour TELs at the boundary (but modelling indicates 1 hour TEL exceedance could occur)
- 4 occasions where 1-hour average > 1ppm (7 samples in total)
 - 3 of 4 occasions both TVOC and Summa >1 ppm (6 measurements in total >1 ppm)
 - none at the port boundary
 - 2 of 4 occasions 1 ppm exceeded <50m from the fumigation
 - 1.02 – 4.8 ppm (+/- 3%)
 - Max TVOC level 36 ppm at location ~30 m from fumigation (3 seconds)

Large differences between TVOC and Summa readings from side by side:

- 62% PID > Summa, 38% Summa > PID
- noting there are limitations in a direct comparison



WorkSafe's methyl bromide project

Next phase

- Will continue with the project up to 20 events total
- For the next 10 events adding: drone monitoring of the plume with PID plus additional fixed PID monitoring points plus 1 hour and 30 seconds measurements using FTIR (specific to methyl bromide, detection limit 0.05 ppm)
- Further comparison of TVOC levels to actual methyl bromide levels

Getting you home healthy and safe.
That's what we're working for.

WORKSAFE
NEW ZEALAND | MAHI HAUMARU
AOTEAROA