Government of **Western Australia**
Department of **Health**

Fumigation Approvals - Assessment and Control of Risks

Introduction

This document forms part of the *Guidelines for fumigations by a registered pest management business* (DoH, 2019). The Department of Health's (DoH's) experience with risk assessments and fumigation plans has been that successful businesses are those where risk assessments and fumigation plans are effectively integrated into their fumigation activities. These two documents will enable the site-specific site details to be addressed, procedures to be developed and allow for seamless management of occupational safety and health and public health risks, even when multiple fumigants are involved.

DoH is mainly concerned with preventing public exposure to the fumigant. However, the Pesticide Management Business should conduct a full risk assessment that considers the hazards associated with a particular fumigation activity.

This document may be used to check that the most important information related to Department of Health fumigation approvals has been included in your risk assessment process.

Risk Assessment

Under the *Health (Pesticides) Regulations 2011*, Regulation 63(3) a fumigation site must be approved by the Chief Health Officer. A risk assessment must be completed prior to seeking approval. The licensed pest management technician (LPMT), sometimes called the fumigator in charge …*must not commence a fumigation unless the LPMT: -*

a. conducts a risk assessment in accordance with AS2476 clause 2.3, and

b. take all reasonable steps to minimise any risks identified" (Regulation 70).

The criteria in the following table relate to factors which may lead to exposure. These are based on Section 2.3 of AS 2476 General Fumigation. This Australian Standard has been withdrawn, however the requirements are industry standard and can be met by complying with the *Guidelines for fumigations by a registered pest management business* and this document.

Risk assessments must use site specific information and details. A separate risk assessment should be completed for each fumigation site that addresses all the specific site issues/hazards, the potential risk to people and infrastructure and the means to control the risks. The risk assessment may either be a completely separate document or incorporated into the fumigation plan for a site. All relevant details for risk management should be included in the application documents and shown on maps/drawings.

The risk assessment process should be ongoing with any completed assessments reviewed regularly and at any time that there any changes in the fumigation process or workplace.

Risk assessments should address both the public health and occupational safety and health hazards associated with fumigation at the site. This document is mainly concerned with public health hazards. However, there is some crossover with hazards to workers.

Assessing and managing exposure risk

This checklist may be used by the Pest Management Business and LPMT to check that a risk assessment and fumigation plan is compliant with the *Health (Pesticide) Regulations 2011*.

Y = included in risk assessment and fumigation plan

N = not included in risk assessment and fumigation plan (rectify prior to submitting Fumigation Approval Application)

N/A = the control measure/action does not apply for the fumigation activities being undertaken at the site

Hazard: Fumigant		
Exposure Factor	**Control Measures/Actions**	**Y/N or N/A**
Sources of leaks, spills or chemical release – equipment and environment	Collection points such as water tanks, ponds, dams etc. have been identified and managed.	
	Design criteria for fumigation enclosures controls the release of fumigant: • selection of smooth, impervious surfaces • fumigant supply lines are >2 m away from monitoring lines • ejection point into fumigation enclosure has sufficient free air space for adequate dispersal. • exhaust flue height is well above surrounding rooflines (>3 m) and at distance from any fresh air intakes • fumigation supply system include fans and opening/closing valves to vent residual fumigant • monitoring lines are placed in the most effective location • the volatiliser / heat exchanger is a separate system and can be monitored/adjusted • electrical equipment complies with AS 3000 (waterproofing protection) • isolation points have been included.	
	Unsealed cracks and crevices have been identified and remedied.	
	Drainage points and sumps have been identified and blocked.	
	Fumigation enclosures and infrastructure is protected from damage by: • people movement and adjacent work activity • vehicle traffic movement	
	A secure, well ventilated storage area, protected from the weather, is available at the site.	

Hazard: Fumigant		
Exposure Factor	**Control Measures/Actions**	**Y/N or N/A**
	Sufficient separation distance is available between the fumigant storage area and any other chemicals, buildings or work areas. Separation distances are shown on a site map/figure.	
	Spill / leak containment has been provided for bulk storage where necessary	
	Cylinders and valves are checked at less than 3 month intervals	
	Storage containers are secured during transport.	
	Dangerous goods placarding and safety data sheet are available during transport	
Chemical release – transport, handling and fumigation (people/vehicles)	Atmospheric testing for the fumigant is performed prior to entering an enclosed storage area.	
	An Exclusion and Risk Area has been identified around the fumigation enclosure and other equipment.	
	The Exclusion Area is signed and barricaded with no unauthorised access permitted during all fumigation activities (from preparation through to venting and final site clearance).	
	Workspaces, including: office, mobile work station, vehicles, etc. are all outside the risk area.	
	Calibrated and maintained gas monitoring equipment with set alarms is supplied.	
	There is a clearly written step by step procedure for the fumigation and operation of plant and equipment (including gas monitoring equipment), venting and clearance.	
	There is an enclosed delivery system	
	The fumigator in charge has good visibility of the “risk area” during the fumigation and venting.	
	For sheet enclosures the fumigation area is free of rumble, “sharps,” and other objects that can tear sheets, and prevent “effective” sealing of the fumigant enclosure.	
	Gas tightness of the enclosure is tested prior to fumigation (e.g. chamber pressure testing, inspection of sheets (overlapped, secure sheets and free of defects)).	
	Safe handling, disposal and collection of the fumigant and all associated waste materials including by a licensed waste removalist or collection by the supplier.	
	Atmospheric testing of the fumigation enclosure is undertaken before entering.	

Hazard: Fumigant		
Exposure Factor	**Control Measures/Actions**	**Y/N or N/A**
Effective use of personal protective equipment and clothing (PPEC)	All PPEC, such as clothing, eye protection, overshoes, chemically resistant gloves have been selected in accordance with the SDS and OHS requirements.	
	Respiratory protection has been selected in compliance with AS 1715 and AS 1716	
	All persons using respiratory protection have an annual fit test for all face fitting respirators	
	All persons using respiratory protection have been trained in the selection, fitting, cleaning, storage, filter life, maintenance and use.	
	All persons using face-fitting respiratory protection have been medically cleared for its use (either through a pre-employment medical or respiratory health surveillance program)	
	PPEC is stored separately from the fumigant storage facility and filters/cartridges are stored in airtight containers.	
	All personal are trained in respiratory protection required during an emergency event.	
Ventilation Factors – rate, location, direction, effects	A re-entry gas concentration, not exceeding exposure standards (available from: http://hcis.safeworkaustralia.gov.au/) has been set and atmospheric testing is conducted prior to entry into a fumigation enclosure.	
	The clearance level must be less than or equal to the residual level stated on the APVMA registered label or below exposure standards.	
	The location and design of the enclosure is maximised for natural ventilation (i.e location, number and size of openings).	
	Fumigation is not undertaken when weather conditions do not allow for appropriate exhaust and dispersal of the fumigant (consider plume modelling, prevailing conditions, adverse weather events, seasonal variations &/or on-site measurements).	
	Ventilation is designed to achieve greater than 20 room air changes / hour.	
	Ventilation is sufficient to ensure fumigant levels remain below exposure standards outside the exclusion area.	
	Ventilation provisions allow for controlled venting with continual monitoring of venting progress	
	A maintenance schedule has been established for inspection and testing of fumigation chamber, including biannual pressure testing and annual ventilation rates testing	

Hazard: Fumigant		
Exposure Factor	**Control Measures/Actions**	**Y/N or N/A**
Occupants of surrounding building or area within or adjacent to risk area	The fumigator in charge is aware of activities beyond the Exclusion Area on the site and nearby – tenants, non-essential personnel, road / traffic and has sufficient authority to stop any activities that may increase risks.	
	There is a system in place for notification of neighbouring businesses, residents as necessary and to address complaints or concerns.	
	Site induction and training should include information on the risks associated with fumigation and the need to comply with restrictions of entry into exclusion areas.	
Confined Space Entry	Work in confined spaces complies with AS 2865 - 2009	
Site Security – breach of the fumigation enclosure or exclusion area.	There is sufficient security at the site to prevent unauthorised entry into the Exclusion Area. Entry prohibition signs and barriers/fencing have been placed around the boundary of the Exclusion Area.	
	The fumigation enclosure is secure during fumigation and ventilation.	
	The storage facility is secured and procedures are in place for accessing the facility.	
Effectiveness of the fumigation and potential for adverse effects on material, commodities, structures due to reaction with the fumigant	Fumigation is undertaken in accordance with the registered label.	
	Clearance testing is undertaken within the fumigation enclosure and any locations where gases may be trapped to confirm there are no residues of the fumigant.	
	Site specific procedures includes the representative sampling points for testing the risk area and fumigation enclosure prior to entry. All persons undertaken atmospheric monitoring for clearance testing have been trained (e.g. completed specific training or equivalent course such as atmospheric testing for confined space entry).	
Emergency Situations	HazChem sign, emergency manifest with SDS and a site map and emergency contact details are available.	
	The required incident response equipment is available and maintained, such as: fire extinguishers, eye wash/safety showers, gas monitoring equipment, intrinsically safe torch.	
	All site personnel, including those outside of the Exclusion Zone, understand the emergency procedures during a fumigation emergency.	
	There is a means of alerting all site occupants located outside the Exclusion Area that an incident has	

Hazard: Fumigant		
Exposure Factor	**Control Measures/Actions**	**Y/N or N/A**
	occurred (e.g.warning siren, evacuation siren, PA system).	
	Minimum means of communication being 2-way radio or fully charged mobiles is available for the fumigator in charge and qualified person(s) to communicate at all times and to all persons involved in an emergency. Where fumigant is kept at a site the fumigator in charge can be contacted at all hours.	
	Emergency (mechanical) venting provisions for the fumigation enclosure have been developed in case of an emergency situations. Provisions have been written into relevant emergency procedures.	
	Muster Points are not located within 100 m downwind of a fumigation site.	

This document can be made available in alternative formats on request for a person with disability.