



Hazardous Area Atmosphere Zone Plan

SAMPLE

Prepared by: Sample
On behalf of Environmental Resources Limited
Based on AS/NZS 2430 and AS/NZS60079.10.1 Series Atmosphere Zoning Standards.





HAZARDOUS AREA ATMOSPHERE ZONE DOCUMENT.

Sample

Address

Sample Date .

Hazardous Atmosphere Zoning Plan Information:

Dear _____,

Thank you for giving Environmental Resources Limited the opportunity to prepare this report regarding the onsite zoning requirements for your site located at _____.

We will endeavour to tackle the issue in the same step-by-step order that would normally be followed during a HSWA Location Compliance Certificate audit:

The first step in an audit of this type requires a Compliance Certifier to establish that the hazardous substances are present in quantities equal to or greater than those specified in this table.


When any one of these quantity limits are triggered, a Location Compliance Certificate is required as per "Regulation 10.34 of the Health and Safety at Work (Hazardous Substances) Regulations 2017. A compliance certifier is required to test the controls of each sub-clause listed in "Regulation 10.34". Sub-clause (d) calls for compliance with regulation 10.6 and the need to document a "Hazardous Atmosphere Zone".

In this instance we are dealing with identified hazardous substances of 2.1.1A classifications. (As identified during your audit and confirmed within the material safety data sheets provided).

Note: These material safety data sheets are required to be produced to any HSNO enforcement officer within ten minutes of their request.

Note: the actual construction of these identified areas are not addressed in this report, merely their location within a hazardous atmosphere zone, and the subsequent proximity to sources of ignition within a zone zero, one and two environment.





Hazardous Area Atmosphere Zones: Information

- Zone Zero: Where the gas is known to be present continuously.
- Zone One: Where the gas is likely to occur in a normal operation (occasionally).
- Zone Two: Where the gas is not likely to occur in normal operation - but if it does occur it will exist for a short time only.

When we look for clarification of these zoning requirements / distances for these types of areas we are directed to the AS/NZS standard 60079.10 series on the “Classification of Hazardous Areas”

Please note the following identified hazard areas:

- **LPG Gas Cylinders (Exchange Type), As per AS/NZS60079.10.1 2009 Section: ZA.6.5.2.16**

This plan may be used as a means of identifying the individual zones only and is not a means of compliance under the HSWA act. It is the responsibility of the principal to ensure that any sources of ignition are excluded from the zone, or alternatively, an electrical certificate of compliance must be issued by a competent professional verifying that all work conducted within the identified zones are compliant with either Zone 0, 1 or Zone 2 as per the plan. Note: this electrical certificate of compliance (signed by a qualified electrical inspector) must be less than four years old from the date of issue. (if applicable)

We have attached all supporting documentation and the pages of all relevant regulations and standards for your reference. We trust that this report will prove useful in any approach made to the authority for clarification in this regard.

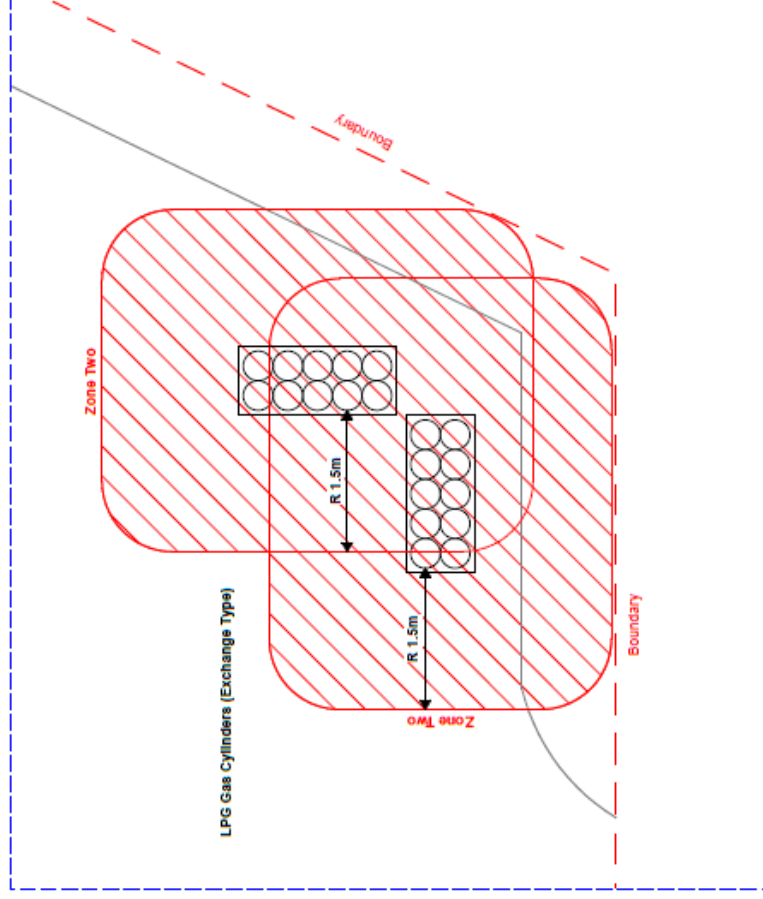
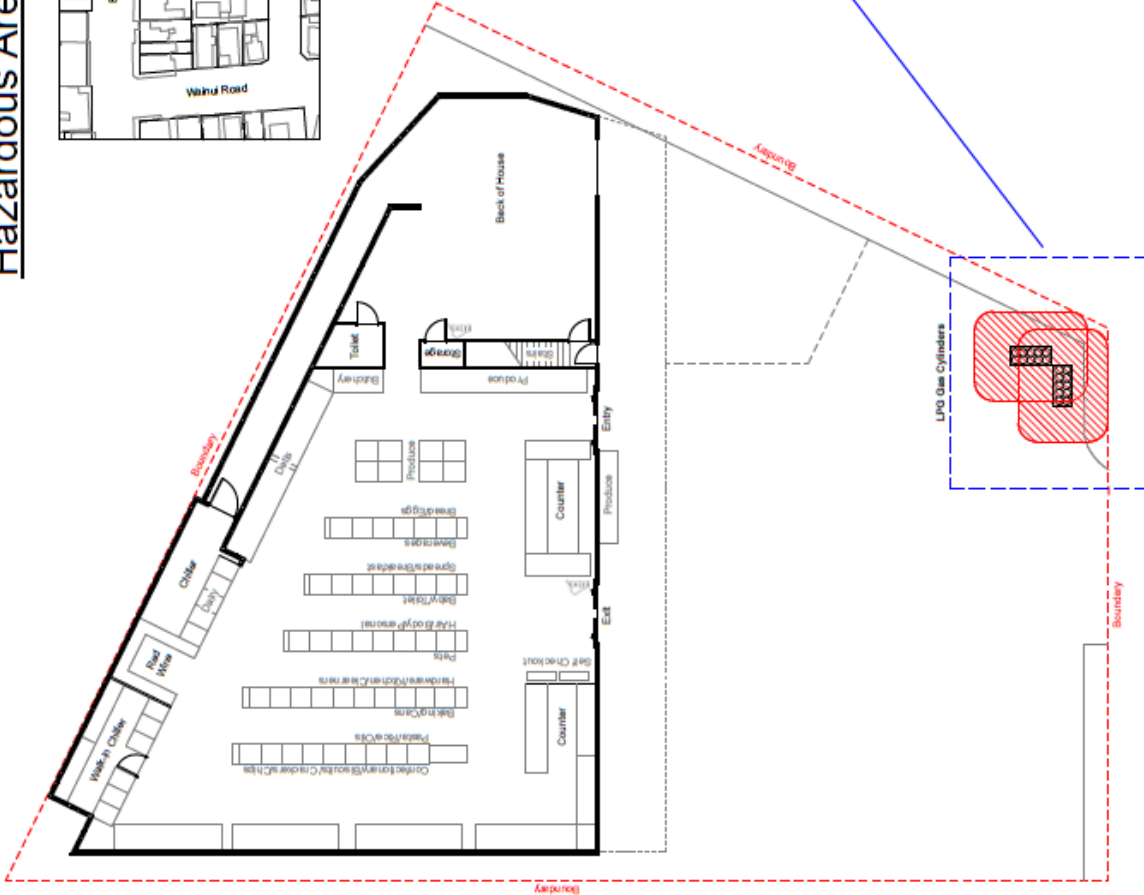
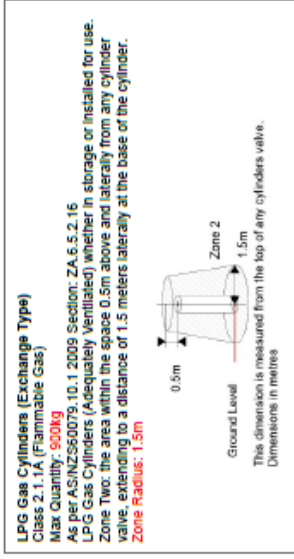
Should you have any comments or questions regarding the above, please feel free to contact us at any time.

Yours Faithfully,

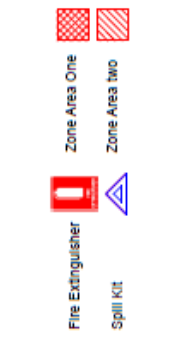
Environmental Resources Limited



Hazardous Area Atmosphere Zone Plan



Notes
 This document has been prepared in accordance with the AS/NZS 2430 and AS/NZS60079.10.1 2009 Standards. All information has been based on the information gathered at the time of your site inspection. This zone plan addresses flammable vapours and flammable liquids in areas where the production, processing, handling, storage and transferring take place. Please note: this plan should be used as a guide only - please refer to the relevant AS/NZS2430 / AS/NZS 60079 standards for actual zoning.



Scale @ A3: 1:200 for FP 1:50 for Detail	Date: --/--/2020	Author: Initials
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SAMPLE ONLY


ENVIRONMENTAL RESOURCES
 4 Pacific Rise Sylvia Park Auckland 1060
 Tel: 09 972-2000

LPG CYLINDERS (Class 2.1.1A)

HAZARDOUS AREA ATMOSPHERE ZONING



Note: For any ignition sources (IE: electrical fittings, lights, alarms etc.) within these zoned areas you are required to obtain an electrical certificate of compliance issued by a qualified electrical inspector.

Any other sources of ignition that are not certified for use within the hazardous atmosphere zone- must be removed.

These zoning distances have been taken for the AS/NZS 60079.10.1: 2009 Standards.

Source Information. AS/NZS 60079.10.1 2009 Section: ZA.6.5.2.16 LPG Gas Cylinders (Adequately Ventilated)

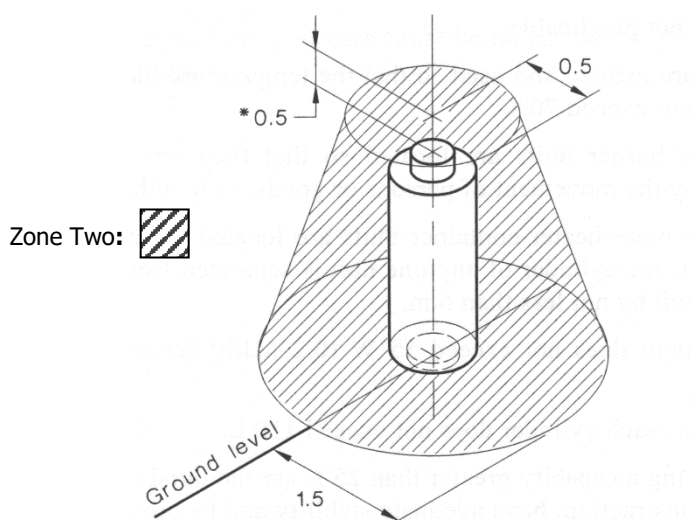
Cylinders adequately ventilated, whether in storage or installed for use. (Exchange Type)

Zone Two – The area within the space 0.5 meters above and laterally from any cylinder valve, extending to 1.5 meters laterally at the base of the cylinder.

For LPG cylinders up to 100Kg the following rules apply:
Cylinders to be located at least 1.0 meter from any opening into a building, e.g. doorway, window vent or drain and if stored against a building the walls behind the cylinders must be made from fire resistant materials.

For LPG cylinders in excess of 100kg – up to 300Kg the following rules apply:
Cylinders to be located at least 2.0 meters from any opening into a building, e.g. doorway, window vent or drain and if stored against a building the walls behind the cylinders are to be made from fire resistant materials (which must extend two meters either side of the cylinders or allocated cylinder storage area).

For cylinders in excess of 300kg – up to 1000Kg the following rules apply:
Cylinders to be located at least 2.0 meters from any opening into a building, e.g. doorway, window vent or drain and if stored against a building the walls behind the cylinders must be vapour tight and meet a minimum 60/60/60 FRR (fire rating – e.g. concrete wall) - which must also extend two meters either side of the cylinder or allocated cylinder storage area.



Terms and Definitions



Explosive atmosphere.

Mixture of air, under atmospheric conditions, of flammable substances in the form of gas, vapours, dust, fibers or flying's which after ignition permits self-sustaining propagation.



Flashpoint

The lowest liquid temperature at which, under certain standardized conditions, a liquid gives off vapours in a quantity such as to be capable of forming an ignitable vapour/air mixture.

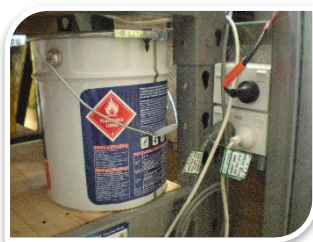
Lower explosive limit (LEL)

The concentration of flammable gas, vapours or mist in air below which an explosive gas atmosphere will not be formed



Source of Release

A point or location from which a gas, vapour, mist or liquid maybe released into the atmosphere, so that an explosive gas atmosphere could be formed.



Ventilation

Movement of air and its replacement with fresh air due to the effects of wind, temperature gradients, or artificial means (for example fans or extractors)

What are the Hazardous Area Atmosphere Zones

Hazardous areas are classified into zones based upon the frequency of the occurrence and duration of an explosive gas atmosphere.

Zone 0 an area in which an explosive gas atmosphere is present continuously or for long periods or frequently.

Zone 1 an area in which an explosive gas atmosphere is likely to occur in normal operation (occasionally).

Zone 2 an area in which an explosive gas atmosphere is not likely to occur in normal operation but if, it does occur, it will exist for a short period only.



Trigger Quantity to establish hazardous area atmosphere zone

Hazardous atmosphere zones need to be established and maintained when there are quantities of flammable materials of a very high (Class 3.1A), high (Class 3.1B), and medium (Class 3.1C) hazard in excess of the following levels:

- 100 Litres in closed containers
- 25 Litres when decanting
- 5 Litres when open occasionally
- 1 Litre when open continuously



Do other limitations exist in the zone?

A forklift truck may present an ignition source if not approved for use in a hazardous zone.

When using a forklift, attention must be given to the flammable nature of the substance, the quantity stored, the type of packages (including whether open or closed), and the quality of the ventilation. Any leaks or spills should be cleaned up prior to the forklift being used.



If you need to test, sample, or decant a flammable substance, do it in an isolated area away from the main storage area.

Who needs to see the hazardous area atmosphere zone plan?

A hazardous atmosphere zone may be required even if the premises do not require a location test certificate.

A test certifier or competent person will identify the hazard zones and a registered electrician will confirm whether the electrical systems comply.

Each hazardous atmosphere zone must be clearly defined on a site plan, which must be available to an enforcement officer. Additionally, you will need to provide this site plan to the test certifier if you need a location test certificate.





Electrical Certificate of Compliance / Re-Validation

The mainstay compliance documentation for any electrical work undertaken in a hazardous area is the initial electrical certificate of electrical compliance for any new work, appropriately signed by a qualified electrical inspector.

For any existing installation, the 4 yearly certificate of electrical re-verification is the correct document required.

The later is a legal document that offers on-going protection for any existing installation that employs EX rated equipment that may be subjected to rigorous use and may also require on-going maintenance to ensure the full protection of the installation.



PO. Box 2025, Severin Ave
Tauranga

Ph 021 750 893, Fax 07 544 9865
Email: admin@eliteinspect.co.nz

Hazardous Area Statement of Periodic Verification

Identification of Installation:	XXXXXXXXXX
Location of Installation:	XXXXXXXXXXXXXXXXXX
Date of examination:	18 May 2012
Expiry Date of Statement:	18 November 2012

Pump F10 has significant surface corrosion and needs attention.

Re-inspection of pumps due in 6 months.

Signature: 

Russell Bailey
Electrical Inspector I242551

Statement of Periodic Verification form re-produced as per AS/NZS 2381.1:2005 Appendix B
Examination and testing for Periodic Inspections as per AS/NZS60079.17-2009 Section 4.4 (Periodic Inspections) and Section 6 (Inspection Schedules)
All inspection check sheets are inserted into the Verification Dossier Kept on site

Example Electrical Certificate of Compliance / Re-Validation



Gas Detection / Gas Monitoring

In certain circumstances where a zone 1 or a zone 2 electrical hazard area maintains equipment that cannot easily gain the required level of electrical verification or the correct EX rating as may be required, a single gas analyser may be a more cost effective option of managing the associated hazardous area.

These single gas analysers are normally installed and calibrated to measure the correct level of hydrocarbon present with any specific application. These may range from Methane or Propane hydrocarbons through to the long chain hexane hydrocarbons.

These units are normally installed so as to provide protection via an alarm if the level of gasses present approaches the maximum safe level, with a full shut down of all associated equipment if the nominal safe level is exceeded.

This does offer a compliant means of managing a hazardous area when correctly installed and regularly calibrated in line with manufacturers specification.





Ignition Sources

Ignition:

Ignition sources must be removed where flammable substances are used and stored.

Please see the attached table of common ignition sources typically found in hazard areas

Flames

- Welding flames
- Gas heaters
- Pilot Lights
- Smoking
- Lighters
- Fires
- Candles
- Bunsen burners

Sparks

- Welding Arcs
- Starters for fluorescent lighting
- Electric motors
- Electrical equipment (power points)
- Cigarette Lighters
- Switches
- Telephones

Heat

- Hot surfaces including: light bulbs
- Ovens
- Radiators of heaters
- Flue pipes
- Vehicle Engines
- Exhaust systems
- Pumps and generators
- Hot wire cutting machines
- The sun



Ventilation

You can minimize the extent to which people are exposed to hazardous substances by using engineering controls, such as ventilation.

Ventilation can reduce the potential for a fire or explosion hazard by diluting flammable vapours in the air around where flammable substances are used or stored.

Exhaust Ventilation is a type of ventilation that captures contaminants at or very near the source and exhausts the vapours outside. These exhaust systems should be installed and frequently maintained by a specialist, such as a ventilation engineer or health and safety specialist. It is important to change the filters on the exhaust system to ensure that the ventilation system is working correctly.

Note: mechanical ventilation systems may require electrical certification (electrical certificate of compliance issued by a qualified electrical inspector).

