

WORK HEALTH AND SAFETY (MINES AND PETROLEUM SITES) REGULATION 2014

Registration of Design of Plant Used to Determine or Monitor the Presence of Gas Order 2022

I, Gary Barnes, Secretary of the Department of Regional NSW, under subclause 177(1)(e) and (5) of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* (“the Regulation”) make the following Order.

Dated this 4th day of April 2022.



Gary Barnes
Secretary of the Department of Regional NSW

1 Name of Order

This Order is the *Registration of Design of Plant Used to Determine or Monitor the Presence of Gas Order 2022*.

2 Commencement

This Order commences on the day it is published in the NSW Government Gazette.

3 Interpretation

In this Order:

AS/NZS is a reference to Australian/New Zealand Standards.

Equipment with integral monitor means equipment that provides meter indication, alarm functions and/or output contacts using a monitor which is within or directly mounted to the equipment housing.

Equipment with remote monitor(s) means a remote monitor control unit, the remote monitor and the interconnecting communications medium.

Note: The interconnecting communications may be via copper cable, fibre optic link or some other form such as a radio link.

Equipment with integral sensor(s) as defined in clause 3.2.14 in AS/NZS 60079.29.1:2017.

Equipment with remote sensor(s) means a gas detection control unit, the remote sensor and the interconnecting communications medium.

Note: The interconnecting communications may be via copper cable, fibre optic link or some other form such as a radio link.

Flammable gas as defined in clause 3.1.3 in AS/NZS 60079.29.1:2017.

Gas detection control unit as defined in clause 3.2.12 in AS/NZS 60079.29.1:2017.

Integral monitor means monitor which is within or directly mounted to the equipment housing.

Integral sensor as defined in clause 3.3.3 in AS/NZS 60079.29.1:2017.

Monitor as defined in clause 1.3.3.1 in AS/NZS 4641:2018.

Plant means electrically powered hand-held plant, fixed installations and installations on mobile plant used to determine or monitor the presence of gas if they are used at an underground coal mine (but does not include tube bundle systems where the analyser is installed at the surface).

Regulation means the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*.

Remote monitor as defined in clause 1.3.3.2 in AS/NZS 4641:2018.

Remote monitor control unit means equipment intended to provide display indication, alarm functions, output contacts and/or alarm signal outputs or any combinations when operated with remote monitor(s).

Remote sensor as defined in clause 3.3.4 in AS/NZS 60079.29.1:2017.

Sensing element as defined in clause 3.3.1 in AS/NZS 60079.29.1:2017.

Sensor as defined in clause 3.3.2 in AS/NZS 60079.29.1:2017.

Toxic gas as defined in clause 1.3.1.11 in AS/NZS 4641:2018.

4 Revocation

The *Registration of Design of Plant Used to Determine or Monitor the Presence of Gas (No.3) Order 2020* published in the NSW Government Gazette No 85 of 24 April 2020 at pages 1518-1520, is revoked on the day this Order commences.

5 Design and performance requirements

5.1 Gas detection

(1) Plant must be designed to comply with the design and performance requirements of the relevant parts of the following standards:

(a) AS/NZS 60079.29.1:2017 Explosive atmospheres – Gas detectors – Performance requirements of detectors for flammable gases;

(b) AS/NZS 4641:2018 Electrical equipment for detection of oxygen and other gases and vapours at toxic levels – General requirements and test methods.

(2) Plant must be designed to provide a conditioned electronic signal or output indication that can be used by the mine operator to determine the level of a gas.

(3) For plant designed for flammable gases:

(a) the plant must be designed as:

i. equipment with integral sensor(s), or

ii. equipment with remote sensor(s), or

iii. equipment with combinations of integral and remote sensor(s).

(b) sensor(s) must include the protective housings and any filters associated with protecting the sensing element.

(4) For plant designed for oxygen and toxic gases:

(a) the plant must be designed as:

i. equipment with integral monitor(s), or

ii. equipment with remote monitor(s), or

iii. equipment with combinations of integral and remote monitor(s).

(b) monitor(s) must include the protective housings and any filters associated with protecting the sensing element.

5.2 Electrical explosion protection

All plant must comply with the relevant parts of clause 78 ‘Use of plant in hazardous zone (explosion-protection required)’–subclause (2), of the Regulation.

6 Test requirements

(1) The test facility used for testing the performance of plant must be a test facility which is unrelated to the designer, manufacturer or supplier.

(2) The test facility must either be:

(a) The Mine Safety Laboratory, NSW, or

(b) a facility in Australia that is accredited by the National Association of Testing Authorities (NATA) for performing the specific tests described in the standards referred to in this Order; or

(c) where a NATA-accredited facility is not available, a suitably qualified and experienced independent testing facility with regard to test equipment, equipment calibration (traceable to the International System of Units (SI) by reference to national measurement standards or through accreditation by an organisation that is a signatory to the ILAC MRA (International Laboratory Accreditation Cooperation Mutual Recognition Arrangement)), quality processes, work methods, past test experience and independent technical verification.

(3) Plant must be tested as per the relevant clauses of:

(a) AS/NZS 60079.29.1:2017 Explosive atmospheres – Gas detectors – Performance requirements of detectors for flammable gases;

(b) AS/NZS 4641:2018 Electrical equipment for detection of oxygen and other gases and vapours at toxic levels – General requirements and test methods.

(4) Plant to be tested must include all component parts, including cables, that enables a conditioned electronic signal or output indication to be provided so that a mine operator can determine the level of a gas that the sensor, or monitor, is exposed to. Where digital output signals are provided, this includes any software drivers and the communications protocols necessary for the testing facility to verify the performance of the plant.

(5) Plant that is designed to detect:

(a) methane up to and including 5% using catalytic combustion sensors must also be tested by exposure to a volume fraction of 2.0 ± 0.2 % methane in air mixture containing a volume fraction of 50ppm hydrogen sulphide for 20 minutes and a reading taken. The difference between the plant indication and the test gas methane concentration must not exceed ± 0.2 % methane.

(b) nitrogen dioxide or nitric oxide are exempt from requirements of clauses 4.6 ‘Pressure variation,’ 4.7 ‘Pressure recovery’ and 4.9 ‘Air velocity’ as detailed in AS/NZS 4641:2018.

7 Determination of applications for registration of design of the plant made before commencement of this order

If an application for registration of design of the plant made in accordance with clause 250 of the *Work Health and Safety Regulation 2017* to which the standards specified in the *Registration of Design of Plant Used to Determine or Monitor the Presence of Gas (No.3) Order 2020* applies is made before the commencement of this Order, and the application has not been finally determined before that commencement, the application is to be determined as if this Order had not commenced.