

D8

(1979)
 (Rev. 1
 1990)
 (Rev. 2
 1996)

Hazardous areas**D8.1 General**

D8.1.1 The unit should be classified into hazardous areas in accordance with D8.1.2 and D8.1.3 or alternatively with an acceptable code of practice.

D8.1.2 Hazardous areas are all those areas where, due to the possible presence of a flammable atmosphere arising from the drilling operations, the use without proper consideration of machinery or electrical equipment may lead to fire hazard or explosion.

D8.1.3 Hazardous areas are subdivided into Zones 0,1 or 2, the definitions of each category being as follows:

Zone 0 an area in which an explosive gas-air mixture is continuously present or present for long periods.

Zone 1 an area in which an explosive gas-air mixture is likely to occur in normal operating conditions.

Zone 2 an area in which an explosive gas-air mixture is not likely to occur, and if it occurs, it will only exist for a short time.

D8.1.4 The hazardous areas defined in D8.2.1 – D8.2.3 are those which normally apply to offshore drilling units for oil and gas exploration. Equipment for well testing is to be specially considered, if present.

The hazardous areas as specified may be extended or reduced depending on the actual arrangements in each case, by use of windshields, special ventilation arrangements, structural arrangements (e.g., low deck head), etc.

D8.1.5 For the purpose of D8:

- (i) An enclosed space is considered to be a space bounded by bulkheads and decks which may have doors, windows, or other similar openings.
- (ii) A semi-enclosed location is considered to be a location where natural conditions of ventilation are notably different from those on open decks due to the presence of structure such as roofs, windbreaks and bulkheads and which are so arranged that the dispersion of gas may not occur.

D8.2 Classification of areas

D8.2.1 Hazardous areas Zone 0 include:

- (i) The internal spaces of closed tanks and pipes of the mud-circulating system between the well and the final degassing discharge as well as oil and gas products, e.g. escape gas outlet pipes, or spaces in which an oil-gas-air mixture is continuously present or present for long periods.

D8.2.2 Hazardous areas Zone 1 include:

- (i) Enclosed spaces containing any part of the mud-circulating system that has an opening into the spaces and is between the well and the final degassing discharge.
- (ii) In outdoor or semi-enclosed locations except as provided for in (iv), the area within 1,5 m (5 ft) of the boundaries of any openings to equipment which is part of the mud system as specified in (i), any ventilation outlets of Zone 1 spaces, or any access to Zone 1 spaces.
- (iii) Pits, ducts or similar structures in locations which otherwise would be Zone 2 but which are arranged so that the dispersion of gas may not occur.



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- (iv) Enclosed spaces or semi-enclosed locations that are below the drill floor and contain a possible source of release such as the top of a drilling nipple.
- (v) Enclosed spaces that are on the drill floor and which are not separated by a solid floor from the spaces in (iv).

D8.2.3 Hazardous areas Zone 2 include:

- (i) Enclosed spaces which contain open sections of the mud circulating system from the final degassing discharge to the mud pump suction connection at the mud pit.
- (ii) Outdoor locations within the boundaries of the drilling derrick up to a height of 3 m (10 ft) above the drill floor.
- (iii) Semi-enclosed derricks to the extent of their enclosures above the drill floor or to a height of 3 m (10 ft) above the drill floor, whichever is greater.
- (iv) Semi-enclosed locations below and contiguous with the drill floor and to the boundaries of the derrick or to the extent of any enclosure which is liable to trap gases.
- (v) Outdoor locations below the drill floor and within a radius of 3 m (10 ft) from a possible source or release such as the top of a drilling nipple.
- (vi) The areas 1,5 m (5 ft) beyond the Zone 1 areas specified in D8.2.2(ii) and beyond the semi-enclosed locations specified in D8.2.2(iv).
- (vii) Outdoor spaces within 1,5 m (5 ft) of the boundaries of any ventilation outlet from or access to a Zone 2 space unless D8.2.4(b) is applicable.
- (viii) Air locks between a Zone 1 and a non-hazardous area.

D8.2.4 Openings, access and ventilation conditions affecting the extent of hazardous zones

Except for operational reasons access doors or other openings should not be provided between:

- a non-hazardous space and a hazardous zone;
- a Zone 2 space and a Zone 1 space.

Where such access doors or other openings are provided, any enclosed space not referred to under D8.2.2 or D8.2.3 and having a direct access to any Zone 1 location or Zone 2 location becomes the same zone as the location except that:

- (a) an enclosed space with direct access to any Zone 1 location can be considered as Zone 2 if:
 - (i) the access is fitted with a gas-tight door opening into the Zone 2 space, and
 - (ii) ventilation is such that the air flow with the door open is from the Zone 2 space into the Zone 1 location, and
 - (iii) loss of ventilation is alarmed at a manned station;
- (b) an enclosed space with direct access to any Zone 2 location is not considered hazardous if:
 - (i) the access is fitted with a self-closing gas-tight door that opens into the non-hazardous location, and
 - (ii) ventilation is such that the air flow with the door open is from the non-hazardous space into the Zone 2 locations, and
 - (iii) loss of ventilation is alarmed at a manned station;
- (c) an enclosed space with direct access to any Zone 1 location is not considered hazardous if:
 - (i) the access is fitted with gas-tight self-closing doors forming an air lock, and
 - (ii) the space has ventilation overpressure in relation to the hazardous space, and
 - (iii) loss of ventilation overpressure is alarmed at a manned station.

Where ventilation arrangements of the intended safe space are considered sufficient by the Society to prevent any ingress of gas from the Zone 1 location, the two self-closing doors forming an air lock may be replaced by a single self-closing gas-tight door which opens into the non-hazardous location and has no hold-back device.



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cont'd**D8.3 Ventilation****D8.3.1 General**

Attention is to be given to ventilation inlet and outlet location and airflow in order to minimize the possibility of cross contamination. Inlets are to be located in non-hazardous areas as high and as far away from any hazardous area as practicable. Each air outlet is to be located in an outdoor area which, in the absence of the considered outlet, is of the same or lesser hazard than the ventilated space. Ventilation for hazardous areas is to be completely separate from that used for non-hazardous areas. Where passing through hazardous areas, the inlet ducts are also to have overpressure in relation to this area.

D8.3.2 Ventilation of hazardous areas

Enclosed hazardous spaces are to be provided with adequate ventilation with under pressure in relation to the less hazardous space or zone. The arrangement of ventilation inlet and outlet openings in the space is to be such that the entire space is efficiently ventilated, giving special consideration to location of equipment which may release gas, and to spaces where gas may accumulate.

The outlet air from Zone 1 and Zone 2 spaces is to be led in separate ducts to outdoor locations. The internal spaces of such ducts belong to the same Zone as the inlet space. Air inlet ducts designed for constant relative underpressures are to be rigidly constructed to avoid air leaks. Fans are to be designed so as to reduce the risk that sparks may occur.

