**LEGISLATION COMPARISON**

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| **S ection** | **Previous Legislation 2 0 1 7 Re g ulations** | **DNRME a m e nded Se ction**Blue words are changes to the section of the Regulation | **Industry propos ed chan g e**Red words are the suggested changes to the DNRME amendment | **Com m e nt**Pink words additional industry comments for clarification |
| **2 3 4A** | **244 Longwall face**(1) At least 1 automatic methane detector must be located at the following places— (b) the intersection between the longwall face and the return airway. (3) A detector located between the intersection between the longwall face and the return airway must automatically trip the electricity supply to longwall equipment in the longwall face and return airway when the general body concentration of methane detected at the intersection exceeds 2%. | **Armoured face conveyor**1. An armoured face conveyor must be fitted with at least 1 automatic methane detector on each electrically-powered tailgate drive motor to detect the general body concentration of methane at the tailgate drive motor.
2. The detector must automatically—(a) activate a visible alarm to warn the operator when the concentration exceeds

1%; and(b) trip the electricity supply to the armoured face conveyor and the longwall shearer when the concentration exceeds 2% | **Armoured face conveyor**1. An armoured face conveyor must be fitted with at least 1 automatic methane detector on each electrically-powered tailgate drive motor to detect the general body concentration of methane at the tailgate drive motor.
2. The detector must automatically—(a) activate a visible alarm *~~to warn the operator~~* when the concentration exceeds

1%; and(b) trip the electricity supply to the armoured face conveyor *~~and the longwall shearer~~* when the concentration exceeds 2%. | Moves the monitor from current location as regulation requires a methane monitor at intersection of LW face and return roadway. All mines have this monitor in the car port to protect TG AFC motor. Intent of the change is to have the monitor to protect the AFC motors. That being the case, industry does not see the need for this monitor to trip the shearer when it reaches 2% because it is meant to protect the TG AFC motor. |
| **2 4 1** | **Plac e s where m e than e det ectors m u st be located**The site senior executive for an underground mine must ensure a place mentioned in this subdivision has automatic methane detectors located at the place under this subdivision | **Plac e s where m ethan e det ectors m u st be located**The site senior executive for an underground mine must ensure a place mentioned in this subdivision has ~~automatic~~ methane detectors located at the place under this subdivision. | ***N o pro p os e d chan g e to t h e a m e n d m e n t*** | Removes the word automatic as the definition of an automatic methane monitor is one that trips power. |
| **2 4 2** | **242 Intake airways**1. At least 1 automatic methane detector must be located in each intake airway at

the interface between— (a) a NERZ and ERZ1; and (b) 2 NERZs.*Example of interface between 2 NERZs—* the interface between subdivided parts of aNERZ1. A detector located at an interface between a NERZ and ERZ1 must—
2. when the general body concentration ofmethane

detected at the interface exceeds 0.25%— automaticallyactivate a visible alarm; and1. when the general body concentration ofmethane

detected at the interface exceeds 0.5%— automaticallytrip the electricity supply to nonintrinsically safe plantin—1. the ERZ1 and NERZ; or
2. if the NERZ has been subdivided—the ERZ1 and

the subdivided part of the NERZ adjacent to theERZ1.1. A detector located at the interface between a NERZ and an ERZ1 must be a self-contained unit or part of the gas monitoring system for the mine.
2. A detector located at an interface

between 2 NERZs must—(a) automatically activate a visible alarm  | **Intake airways**1. At least 1 automatic methane detector must be located in each intake airway at

the interface between— (a) a NERZ and ERZ1; and (b) 2 NERZs.*Example of interface between 2 NERZs—* the interface between subdivided parts of aNERZ1. A detector located at an interface between a NERZ and ERZ1 must—

(a) when the general body concentration of methane detected at the interface exceeds 0.25%—automatically activate a visible alarm; and (b) when the general body concentration of methane detected at the interface exceeds 0.5%—automatically trip the electricity supply to non-intrinsically safe plant in—1. the ERZ1 and NERZ; or
2. if the NERZ has been subdivided—the ERZ1 and the subdivided part of the NERZ adjacent to the ERZ1.
3. A detector located at the interface between a NERZ and an ERZ1 must be a self-contained unit or part of the gas monitoring system for the mine.
4. A detector located at an interface

between 2 NERZs must—1. automatically activate a visible alarm when the general body concentration of methane detected at the interface exceeds

0.25%; and1. if the NERZ has been subdivided—automatically trip the electricity supply to non-intrinsically safe plant in the adjacent
 | ***It is reco m m e n d e d that t h e a m e n d e d s e c tions 2 4 2( 5), (6) and (7) are d ele t e d.***This recommendation is based upon the following:* The proposed amendment does not provide additional improvement as all diesel vehicles are already fitted with on board methane monitors as required by s236, 237, 238 and 240.
* Areas where vehicles operate in returns are inspected by ERZ Controllers who have personal gas detectors as part of the mines’ SOP under s318.
 | Introduction of a Methane monitor in the return roadway at any point where a vehicle may enter the return that shows a visible alarm to the operator of the vehicle before entering the return when the Methane reaches 1.0%Need clarification to understand what situation this is trying to protect against. Most situations that this could possibly apply to should already have a boundary monitor. Suggest diagrams of possible situations that this could apply to: e.g. LW back over intake into LW intake at MG – Grasstree.This section refers to Intake Airways. If there is a ERZ1/ERZ1 boundary in a roadway, on which side of the interface does the monitor have to be placed or does it have to be on both sides of the interface? Which side of the Interface does the visible alarm have to be located or is it on both sides? |

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|  | when the general body concentration of methane detected at the interface exceeds 0.25%; and(b) if the NERZ has been subdivided— automatically trip the electricity supply to non-intrinsically safe plant in the adjacent subdivided part when the general body concentration of methane detected at the interface exceeds 0.5%.(5) The alarm mentioned in subsections (2) (a) and (4)(a) must be visible at the interface. | subdivided part when the general body concentration of methane detected at the interface exceeds 0.5%.1. At least 1 methane detector must be located in each intake airway at the interface between 2 ERZ1s.
2. A detector located at the interface between 2 ERZ1s must automatically activate a visible alarm when the general body concentration of methane detected at the interface exceeds 1%.
3. The alarm mentioned in subsections (2) (a) and (4)(a) or (6) must be visible at the interface
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| **2 4 3** | **Main return airway and return airway in a ventilation split**(1) At least 1 automatic methane detector must be located in—1. each main return airway; and
2. each return airway in a ventilation split.(2) The detector must automatically activate a visible alarm when the general body concentration of methane detected in the return air exceeds the percentage stated in the mine’s principal hazard management plan for ventilation as the percentage that must not be exceeded before the detector activates the alarm
 | **Main return airway and return airway in a ventilation split**(1) At least 1 ~~automatic~~ methane detector must be located in—1. each main return airway; and
2. each return airway in a ventilation split.(2) The detector must automatically activate a visible alarm when the general body concentration of methane detected in the return air exceeds the percentage stated in the mine’s principal hazard management plan for ventilation as the percentage that must not be exceeded before the detector activates the alarm
 | ***N o pro p os e d chan g e to t h e a m e n d m e n t*** | Removes the word automatic as the definition of an automatic methane monitor is one that trips power. |
| **2 4 3A** |  | **Return airway in ventilation split intersecting with longwall face**(1) This section applies—1. in relation to a return airway in a ventilation split that intersects with a

longwall face; and1. in addition to the requirements under section 243.

(2) At least 1 automatic methane detector must be located in the return airway within 400m of the intersection with the longwall face. (3) The detector must automatically— (a) activate a visible alarm when the general body concentration of methane detected in the return air exceeds the percentage stated in the mine’s principal hazard management plan for ventilation as the percentage that must not be exceeded before the detector activates the alarm; and(b) trip the electricity supply to the armoured face conveyor and the longwall shearer cutters when the general body concentration of methane detected in the return air exceeds 2%. | Return airway in ventilation split intersecting with longwall face(1) This section applies—1. in relation to a return airway in a ventilation split that intersects with a

longwall face; and1. in addition to the requirements under s243.
2. At least 1 automatic methane detector must be located in the return airway within 400m of the intersection with the longwall face.
3. The detector must automatically—(a) activate a visible alarm when the general body concentration of methane detected in the return air exceeds the percentage stated in the mine’s principal hazard management plan for ventilation as the percentage that must not be exceeded before the detector activates the alarm; and

*(b) trip the electricity supply to the longwall shearer cutters when the general body concentration of m ethane detected in the return air exceeds the value determined by the principle hazard*  | Introduction of a methane monitor in the return airway from a Longwall no greater than 400m outbye of the LW face (most LW mines already have this monitor in place)The intent of the industry proposed amendment is to provide monitoring that will prevent methane exceeding 2.5%, but allowing the mine to manage the level at which it will respond. This maintains the requirement for a HPI to be reported at 2.5%.(3)(c) has been added because the requirement to trip the electricity supply to equipment in a LW return airway has been removed from the legislation, which potentially increases the risk. |

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|  |  |  | *manage ment plan for ventilation to prevent m ethane in the return exceeding* *2.5%; and**(c) trip the electricity supply to equip ment located in the longwall return airway when the general body m ethane concentration exceeds 2%.* |  |
| **2 4 3 B** |  | **Return airway that is a relevant zone** (1) This section applies in addition to the requirements under section 243.(2) At least 1 methane detector must be located in each of the following places— (a) a return airway that is an ERZ0 (a ***relevant zone*** ), if a machine can physically pass through a boundary between—1. a NERZ and the ERZ0; or
2. an ERZ1 and the ERZ0;

(b) a return airway that is an ERZ1 (also a ***relevant zone*** ), if a machine can physically pass through a boundary between—(i) a NERZ and the ERZ1; or (ii) another ERZ1 and the ERZ1.(3) The detector must automatically activate a visible alarm at each machine access leading into the relevant zone when the general body concentration of methane detected in the return air exceeds 1% | 1. This section applies in addition to the requirements under section 243.
2. *The Mine Manager shall ensure that any point where entry into an ERZ0 by a diesel or electric powered vehicle is possible, it is secured in such a way as to prevent inadvertent or unauthorised access.*
3. *At least one m ethane detector m ust be located in a longwall return airway that is an ERZ1 (a* ***relevant zone*** *), if a machine can physically pass through a boundary into the relevant zone.*
4. The detector must automatically activate a visible alarm at each machine access leading into the relevant zone when the general body concentration of methane detected in the return air exceeds 1%.
 | Introduction of a methane Monitor in an ERZ0 at any point where a vehicle may enter the ERZ0 that activates a visible alarm to warn the operator of the Methane level before entering the Zone.Areas where vehicles operate in returns are inspected by ERZ Controllers who have personal gas detectors as part of the mines’ SOP under s318.S261(3) states the UMM must ensure an internal combustion engine is not used in an ERZ0, therefore this amendment is not required and could increase the risk as operators will focus on the methane monitor and if it says 0.8% methane will assume it is OK to enter. The industry suggested amendment (2) is that the UMM shall prevent access to an ERZ, or a relevant zone (being the LW TG). Currently this is done by locking the vehicle door access with a Deputy Lock (leaving man door access open for egress routes). ENSHAM SPECIFIC COMMENTS243B- Do we need monitors were our face line enters the return- this could be 3 monitors from were the last rated stopping is across to A Hdg (See attached diagram Figure 1) |
| **2 4 4** | **244 Longwall face**1. At least 1 automatic methane detector must be located at the following places— (a) the intersection between the longwall face and an intake airway;
2. A detector located between the longwall face and an intake airway must automatically trip the electricity supply to longwall equipment in the longwall face and intake airway when the general body concentration of methane detected at the intersection exceeds 2%.
 | **Longwall fac e**1. At least 1 automatic methane detector must be located at the intersection between a longwall face and an intake airway.
2. A detector located at the intersection between a longwall face and an intake airway must automatically—
3. activate a visible alarm when the general body concentration of methane detected at the intersection exceeds 1%; and
4. trip the electricity supply to longwall equipment in the longwall face and intake airway when the general body

concentration of methane detected at the intersection exceeds 2% | ***N o pro p os e d chan g e to t h e a m e n d m e n t*** | Simply adds the requirement for the Methane monitor at the MG of the LW to have an alarm function and removes the requirement for a methane detector at the intersection of the longwall face and the return roadway which has now been relocated to the TG AFC motor. |
| **2 5 0** | Action to be taken if methane detector activates or is non-operational (1) An underground mine must have a standard operatingprocedure for taking action when any of the following happens— | **Action to be taken if m et hane detector activates or is non-operational**(1) An underground mine must have a standard operating procedure for taking action when any of the following happens— (a) an automatic methane detector fitted to a machine, vehicle or plant mentioned in  | **Action to be taken if m e thane det ector activates or is non-operational**(1) An underground mine must have a standard operating procedure for taking action when any of the following happens— (a) an automatic methane detector fitted to a machine, vehicle or plant mentioned in  | The amendment regulation includes several changes:Failure of methane monitor on TG AFC motor or at the MG end of the LW face must be fixed immediately, i.e. cannot be temporarily over ridden to allow operations to continue to make the area safe |

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|  | (a) an automatic methane detector fitted to a machine,vehicle or plant mentioned in section 233, 234, 235,236, 237 or 238—1. trips the electricity supply to the

machine, vehicle or plant; or1. stops its internal combustion engine;(b) a methane detector mentioned in paragraph (a), other

than a methane detector fitted to a longwall shearer, fails in service; (c) a methane detector located at the interface between a NERZ and an ERZ1, orbetween adjoining NERZs—1. fails in service; or
2. is being tested or relocated.

(2) The procedure may provide that, if an event mentioned insubsection (1)(a) or (b) happens to a machine or vehicle (otherthan a longwall shearer) in an ERZ1, the methane detector may be temporarily overridden to allow the machine or vehicle to be moved, but only if—1. the general body concentration of methane around the machine or vehicle is less than 1.25%; and
2. a portable methane detector is used to continuously monitor the concentration.

(3) The procedure may also provide that if an event mentioned insubsection (1)(b) happens to a longwall shearer, the methanedetector may be temporarily overridden to allow the machine to be operated to allow movement to a secure place along the face or at the gate ends, but only if— (a) the general body concentration of methane around the machine is less than 1.25%; and(b) a portable methane detector is used to continuously monitor the concentration. (4) The procedure may also provide that— (a) if an event mentioned in subsection (1) (b) happens to a relevant machine or vehicle being used in a NERZ, the operator may continue to use the machine or vehicle only if—1. the general body concentration of methane around the machine or vehicle is less than 0.5%; and
2. the place where the machine or vehicle is located is continuously monitored by a person using a portable methane detector; or
3. if an event mentioned in subsection (1)
4. happens, themethane detector—

(i) must be replaced or repaired as soon as  | section 233, 234, 234A 235, 236, 237 or 238—1. trips the electricity supply to the

machine, vehicle or plant; or1. stops its internal combustion engine;(b) a methane detector mentioned in paragraph (a), other than a methane detector fitted to a longwall shearer, fails in service;

(c) a methane detector located as required under section 242, 243, 243A, 243B or 244—1. fails in service; or
2. is being tested or relocated.

(2) The procedure may provide that, if an event mentioned in subsection (1)(a) or (b) happens in relation to a methane detector fitted to a machine or vehicle (other than a longwall shearer or armoured face conveyor) in an ERZ1, the methane detector may be temporarily overridden to allow the machine or vehicle to be moved, but only if—1. the general body concentration of methane around the machine or vehicle is less than 1.25%; and
2. a portable methane detector is used to continuously monitor the concentration.

(3) The procedure may also provide that if an event mentioned in subsection (1)(b) happens in relation to a methane detector fitted to a longwall shearer as mentioned in section 234, the methane detector may be temporarily overridden to allow the longwall shearer to be operated to allow movement to a secure place along the face or at the gate ends, but only if— (a) the general body concentration of methane around the machine is less than 1.25%; and(b) a portable methane detector is used to continuously monitor the concentration.(4) The procedure may also provide that, if an event mentioned in subsection (1)(b) happens in relation to a methane detector fitted to a relevant machine or relevant vehicle (other than an armoured face conveyor) being used in a NERZ, the operator may continue to use the machine or vehicle only if—1. the general body concentration of methane around the machine or vehicle is less than 0.5%; and
2. the place where the machine or vehicle is located is continuously monitored by a person using a portable methane detector.

(5) The procedure may also provide that, if an event mentioned in subsection (1)(c) happens in relation to a methane detector located as required under section 243, 243A or 244, the methane detector must be replaced or repaired immediately. | section 233, 234, 234A 235, 236, 237 or 238—1. trips the electricity supply to the

machine, vehicle or plant; or1. stops its internal combustion engine;(b) a methane detector mentioned in paragraph (a), other than a methane detector fitted to a longwall shearer, fails in service;

(*c) a m ethane detector located as required under section 242, ~~243~~, 243A, ~~243B~~ or 244**—*1. fails in service; or
2. is being tested or relocated.

(2) The procedure may provide that, if an event mentioned in subsection (1)(a) or (b) happens in relation to a methane detector fitted to a machine or vehicle (other than a longwall shearer or armoured face conveyor) in an ERZ1, the methane detector may be temporarily overridden to allow the machine or vehicle to be moved, but only if—1. the general body concentration of methane around the machine or vehicle is less than 1.25%; and
2. a portable methane detector is used to continuously monitor the concentration.

(3) The procedure may also provide that if an event mentioned in subsection (1)(b) happens in relation to a methane detector fitted to a longwall shearer as mentioned in section 234, the methane detector may be temporarily overridden to allow the longwall shearer to be operated to allow movement to a secure place along the face or at the gate ends, but only if— (a) the general body concentration of methane around the machine is less than 1.25%; and(b) a portable methane detector is used to continuously monitor the concentration.(4) The procedure may also provide that, if an event mentioned in subsection (1)(b) happens in relation to a methane detector fitted to a relevant machine or relevant vehicle (other than an armoured face conveyor) being used in a NERZ, the operator may continue to use the machine or vehicle only if—1. the general body concentration of methane around the machine or vehicle is less than 0.5%; and
2. the place where the machine or vehicle is located is continuously monitored by a person using a portable methane detector.

*(5) The procedure may also provide that, if an event m entioned in subsection (1)(a) or (c) happens in relation to a m ethane detector located as required under section 243A, the m ethane detector m ust be replaced or repaired im mediately; The*  | Methane monitor in any 4-way in the returns at a ventilation split or at the bottom of an upcast shaft must be repaired immediately.Methane detectors that fail at entry points to ERZ1 or ERZ0 must be repaired as soon as practicable.This amendment creates a conflict with s 252 General Back up for Gas Monitoring. S252(3) clearly states that UMM must ensure coal mining operations must not be carried out unless the area is continually monitored, using portable gas detectors to achieve an acceptable level of risk.If the monitor at the MG of a LW face fails, it would be an acceptable level of risk for the MG AFC operator to monitor the atmosphere with a hand held PGD until such time as the monitor could be repaired.It is recommended that for 1(c) reference to 243 and 243B are removed as these methane monitors are not automatic methane monitors, i.e. they do not trip electricity supplies.The recommended change to the amendment allows the LW shearer and AFC to be moved if it is necessary to rectify an issue that may have caused the high methane at the 400m sensor (i.e. use AFC to clear a roof fall to restore the airway) or to allow access to the TG to repair the monitor if it fails (i.e. a fall of roof severs the monitor cable and the area must be cleared to allow the cable to be repaired.Industry ventilation specialists agree that tripping power at 2.0% will not remove the possibility of methane greater than 5% being present in the goaf stream at the TG end of the Longwall face.In addition, note that section 250(2) states *The procedure may provide that, if an event m entioned in subsection (1)(a) or (b) happens in relation to a m ethane detector fitted to a machine or vehicle (other than a longwall shearer or armoured face conveyor) in an ERZ1, the m ethane detector may be te mporarily overridden to allow the machine or vehicle to be moved, but only if—* (etc). Section 250(3) then states that if the methane detector on a shearer fails in service certain actions are required to move the LW shearer, however there is no further reference to the action to be taken if the TG AFC detector (required by s234A) fails in service. |

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|  | practicable; and(ii) may be overridden temporarily to allow operations to continue in the zones until the detector is replaced or repaired, but only if the conditions mentioned in subsection (5) are complied with.(5) For subsection (4)(b)(ii), the conditions are—(a) a person uses a portable methane detector to continuously monitor for methane—1. if the event involves 1 methane detector—at the location of the methane detector; or
2. if the event involves more than 1 methane detector at an interface—by moving between the methane detectors at the interface that have failed or are being tested or relocated; and

(b) the electricity supply to the affected zones can be readily tripped when the general body concentration of methane at the location of a methane detector being monitored as required under paragraph (a) exceeds 0.5%.(6) In this section—*relevant machine* means a machine supplied with electricity by a trailing cable.*relevant vehicle* means an explosionprotected vehicle powered by a battery or an internal combustion engine. | (6) The procedure may also provide that, if an event mentioned in subsection (1)(c) happens in relation to a methane detector located as required under section 242 or 243B—(a) the methane detector must be replaced or repaired as soon as practicable; and (b) for a methane detector located in an intake airway at the interface between the zones as mentioned in section 242(1)(a) or (b)—the methane detector may be overridden temporarily to allow operations to continue in the zones until the detector is replaced or repaired, but only if the conditions mentioned in subsection (7) are complied with(7) For subsection (6)(b), the conditions are—(a) a person uses a portable methane detector to continuously monitor for methane—1. if the event involves 1 methane detector—at the location of the methane detector; or
2. if the event involves more than 1 methane detector at an interface—by moving between the methane detectors at the interface that have failed or are being tested or relocated; and

(b) the electricity supply to the affected zones can be readily tripped when the general body concentration of methane at the location of a methane detector being monitored as required under paragraph (a) exceeds 0.5%.(8) In this section—***relevant m a c hine*** means a machine supplied with electricity by a trailing cable. ***relevant ve hicle*** means an explosionprotected vehicle powered by a battery or an internal combustion engine | *AFC and/or Shearer may be re powered if* *the following is complied with;**It can be de monstrated by the ERZC using a portable gas detector that the m ethane general body concentration around the LW Shearer and the TG AFC motor is below 2%.**The AFC and shearer may only be repowered and operated in this manner to effect repairs to the monitor under section 234A(2).**(6) The procedure may also provide that, if an event m entioned in subsection (1)(c) happens in relation to a m ethane detector located as required under section 242,* *243, 243B or 244 —**(a) the m ethane detector m ust be replaced or repaired as soon as practicable; and (b) for a m ethane detector located in an intake airway at the interface between the zones as m entioned in section 242(1)(a) or (b)—the m ethane detector may be overridden te mporarily to allow operations to continue in the zones until the detector is replaced or repaired, but only if the conditions m entioned in subsection (7) are complied with*(7) For subsection (6)(b), the conditions are—(a) a person uses a portable methane detector to continuously monitor for methane—1. if the event involves 1 methane detector—at the location of the methane detector; or
2. if the event involves more than 1 methane detector at an interface—by moving between the methane detectors at the interface that have failed or are being tested or relocated; and

(b) the electricity supply to the affected zones can be readily tripped when the general body concentration of methane at the location of a methane detector being monitored as required under paragraph (a) exceeds 0.5%.(8) In this section—***relevant m a c hin e*** means a machine supplied with electricity by a trailing cable. ***relevant vehicle*** means an explosionprotected vehicle powered by a battery or an internal combustion engine |  |
| **2 5 1** | **Record of tripping of electricity s upply** (1) This section applies if an electricity supply is tripped by an automatic methane detector— (a) located—1. at the interface between a NERZ and an

ERZ1; or1. between adjoining NERZs; or(b) fitted to a non-explosion-protected vehicle.
 | **Record of tripping of electricity s upply** (1) The underground mine manager for a mine must ensure a record is kept of the day and time when an electrical supply is tripped by a methane detector used, fitted or located as required under any of sections 231, 233 to 240, 242, 243A, or 244.(2) The record must be kept for 7 years after the day the electrical supply is  | ***N o pro p os e d chan g e to t h e a m e n d m e n t*** |  |

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|  | (2) The underground mine manager for the mine must ensure a record is kept of the date and time of the event. | tripped. |  |  |
| **3 4 3** | **Ventilation syste m m u st provide for g e n eral body****conc e ntrations for particular conta minants and gas e s**(1) The ventilation officer for an underground mine must ensurethe mine’s ventilation system is designed, implemented andmonitored to ensure the atmosphere in each part of the mine has a general body concentration that is—1. for carbon dioxide or a contaminant mentioned in schedule 6, column 1—as low as reasonably achievable and within the limits to which a person may be exposed to the contaminant under section 359 or carbon dioxide under section 360; or
2. for oxygen—at least 19%; or
3. for methane—not more than 2.5%.
4. The ventilation officer must ensure a record is kept of the

results of monitoring for atmospheric contaminants in each place where a person is exposed to a contaminant.1. This section does not apply to a part of

the mine exempted under section 345. | **Ventilation syste m m u st provide for g e n eral body conc entrations for particular conta minants and g as e s**(1) The ventilation officer for an underground mine must ensure the mine’s ventilation system is designed, implemented and monitored to ensure the atmosphere in each part of the mine has a general body concentration that is— (a) for a contaminant mentioned in schedule 6, column 1—as low as reasonably achievable and within the limits to which a person is allowed to be exposed under section 359; and (b) for oxygen—at least 19%; and (c) for methane—not more than 2.5%. (d) for carbon dioxide—as low as reasonably achievable and within the limits to which a person is allowed to be exposed under section 360.(2) The ventilation officer must ensure. (a) a record is made of the results of monitoring the ventilation system under subsection (1) for the atmospheric contaminants and gases mentioned in the subsection; and(b) the record is kept for 7 years after it is made*.*(3) The ventilation officer must also ensure that, if the general body concentration of methane in the mine exceeds 2.5% (a ***m e t han e ev e n t*** )—(a) a record is made of—1. the day, time and duration of the

methane event; and1. the part of the mine in which the methane event happened; and

(b) the record is kept for 7 years after the day the methane event happened.(4) This section does not apply to a part of the mine exempted under section 345. | ***N o pro p os e d chan g e to t h e a m e n d m e n t, ho w ev er it is no t e d that su b s e c tion (4) will no w creat e conflict with re q uire m e n t s to e n t er or m a na g e areas tha t have conta minant s pr e s e n t and to und ertak e m i tigating actions – th e s e hav e b e e n liste d in th e no t e s for 3 4 5 as Hot work, Sho tfiring, Poly m eric ch e mical us e, Sealing road ways aroun d a g oaf, e t c.******If (4) is left as it is, 3 4 5 will ne e d to b e m o difie d as indicate d b elow*** |  |

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| **S ection** | **Previous Legislation 2 0 1 7 Re g ulations** | **DNRME a m e nded Se ction**Blue words are changes to the section of the Regulation | **Industry propos ed chan g e**Red words are the suggested changes to the DNRME amendment | **Com m e nt**Pink words additional industry comments for clarification |
| **3 4 4** | **Other things for which ventilation syste m m u st provide**(1) The ventilation officer for an underground mine must ensurethe mine’s ventilation system provides for the following—1. minimising, within acceptable limits, the layering and

accumulation of noxious and flammable gas in each place where controlled ventilation is required under paragraph (b);1. controlled ventilation—
2. in each place used by a person for normal work or travel, other than a place where an inspection mentioned in section 307 is being carried out and no-one else is working; and
3. in each standing working place that is on the intake side of a working place; and
4. in each working place in an ERZ1;

(c) at least—(i) 1 entry to each working part of the mine to conduct intake air to the part; and (ii) 1 entry to each working part of the mine to conduct return air from the part; (d) monitoring and recording the concentration of atmospheric contaminants in each place mentioned in paragraph (b).1. Subsection (1)(a) does not apply when there is a sudden,

temporary increase in the general body concentration of methane to more than 2.5% and the ventilation system is capable of quickly reducing the methane concentration to not more than 2.5%. *Example for subsection (2)—* a roof fall in a goaf causes an inrush creating a high and temporary concentration of methane1. The controlled ventilation for a working

place mentioned insubsection (1)(b)(ii) or (iii) must provide for a ventilation current of an average velocity of at least 0.3m/s, measured across the cross-sectional area of the roadway in the working place.1. Subsection (1)(c)(ii) does not apply to—
2. a shaft being sunk; or
3. a drift or individual roadway being driven and for which it would be impracticable to provide a separate return roadway.

*Example for paragraph (b)—* a single entry drive or longwall face heading(5) This section does not apply to a part of the mine exempted under section 345. | **Other things for which ventilation syste m m u st provide**(1) The ventilation officer for an underground mine must ensure the mine’s ventilation system provides for the following—1. minimising, within acceptable limits, the layering and accumulation of noxious and flammable gas in each place where controlled ventilation is required under paragraph (b);
2. controlled ventilation—
3. in each place used by a person for normal work or normal travel; and
4. in each standing working place that is on the intake side of a working place; and
5. in each working place in an ERZ1 or an

ERZ0;(c) at least—(i) 1 entry to each working part of the mine to conduct intake air to the part; and (ii) 1 entry to each working part of the mine to conduct return air from the part; (d) monitoring and recording the concentration of atmospheric contaminants in each place mentioned in paragraph (b).1. Subsection (1)(a) does not apply when there is a sudden, temporary increase in the general body concentration of methane to more than 2.5% and the ventilation system is capable of quickly reducing the methane concentration to not more than 2.5%.
2. Subsection (1)(b)(i) does not apply to

the following places—1. a place where controlled ventilation hasfailed and that is being inspected under section 307 to re-establish controlled ventilation;
2. a cut-through connected to a roadway, if—

(i) control measures, other than controlled ventilation, have been implemented for minimising, within acceptable limits, the layering and accumulation of noxious and flammable gas in the cut-through; and (ii) there is controlled ventilation on the roadway.(4) Subsection (1)(c)(ii) does not apply to—1. a shaft being sunk; or
2. a drift or individual roadway being driven and for which it would be impracticable to provide a separate return roadway.

Example for paragraph (b)— a single entry drive or longwall face heading1. This section does not apply to a part of

the mine exempted under section 345.1. In this section — ***con trolle d***

***ventilation***, for a place, means ventilation involving a ventilation current of an  | **Other thing s for which ventilation syste m m u st provide**(1) The ventilation officer for an underground mine must ensure the mine’s ventilation system provides for the following—1. minimising, within acceptable limits, the layering and accumulation of noxious and flammable gas in each place where controlled ventilation is required under paragraph (b);
2. controlled ventilation—
3. in each place used by a person for normal work or normal travel; and
4. in each standing working place that is on the intake side of a working place; and
5. in each working place in an ERZ1 or an

ERZ0;(c) at least—(i) 1 entry to each working part of the mine to conduct intake air to the part; and (ii) 1 entry to each working part of the mine to conduct return air from the part; (d) monitoring and recording the concentration of atmospheric contaminants in each place mentioned in paragraph (b).1. Subsection (1)(a) does not apply when there is a sudden, temporary increase in the general body concentration of methane to more than 2.5% and the ventilation system is capable of quickly reducing the methane concentration to not more than 2.5%.
2. Subsection (1)(b)(i) does not apply to

the following places—1. a place where controlled ventilation hasfailed and that is being inspected under section 307 to re-establish controlled ventilation;
2. *a cut-through or a roadway, if control m easures, other than controlled ventilation, have been imple mented for minimising, within acceptable limits, the layering and accu mulation of noxious and flam mable gas in the cut-through or the roadway.*

(4) Subsection (1)(c)(ii) does not apply to—1. a shaft being sunk; or
2. a drift or individual roadway being driven and for which it would be impracticable to provide a separate return roadway.

Example for paragraph (b)— a single entry drive or longwall face heading(5) This section does not apply to a part of the mine exempted under section 345. (6) In this section — ***controlle d*** ***ve ntilation***, for a place, means ventilation involving a ventilation current of an average velocity of at least 0.3m/s, measured across the cross-sectional area of the roadway in the place | A control measure other than controlled ventilation could be that the area is regularly inspected by a person carrying a personal gas detector to ensure the general body contaminants satisfy the requirements of s343.N.B. (3)(b) the words “connected to” have been removed, so that it applies to a roadway, not just to a cut-through.ENSHAM SPECIFIC COMMENTDuring bord and pillar operations using brattice ventilation it is not possible to achieve 0.3m/sec in each roadway inbye of the boot end as the majority of the ventilation is pushed to the intake side to provide maximum quantities across the last open cut-through for intake to return. (See attached diagram figure 2) |

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|  |  | average velocity of at least 0.3m/s, measured across the cross-sectional area of the roadway in the place |  |  |
|  |  | **Specific fe edback on this s e ction from Industry Ventilation Engin e ers:**The cumulative impact of this ventilation change is HUGE. 1. 2 heading development panels cannot operate on one fan to maintain 0.3m/s at the end of both headings at all times;
2. Mains panels will require numerous fans to maintain 0.3m/s at the end of all headings at all times;
3. Additional auxiliary fans simply cannot be manufactured in six months and new main fan installations to cater for the additional demand take much longer;
4. Very few mines will have the capacity in their main ventilation systems to meet this requirement. This will result in panels being stood down and potentially CMW’s being laid off.

From a mine safety perspective, this massive increase in last line quantities will result in:1. **Increased spontaneous combustion risk due to increased differential pressures.** The relationship between pressure and quantity is a squared function, in other words doubling quantity for a fixed resistance quadruples the pressure. Increasing pressure differentials contradicts the SIMTARs green book and recognised standard 9 which both emphasise the importance of minimising pressure differentials for reducing the risk of spontaneous combustion;
2. **Increased respirable dust pickup.** As a result of increasing the intake velocities throughout the entire mine. Again this contradicts recognised standards which refer to managing intake velocities;
3. **Increased explosible dust levels**. Particularly around coffin seals which will also be exposed at an increased risk of fire;
4. **Impairments to emergency self-escape**, especially in high velocity mains roadways;
5. At some mines, this will also result in **increased effective temperatures** due to the reduction in cooling system efficiency and reduced heat transfer times;
6. **More erroneous gas alarms** – (particularly CO make alarms) as small changes in concentration (or instrument error) in high ventilation quantities creates significant changes in make;
7. **Higher mine resistances and potentially less ventilation** due to more resistive splits caused by additional brattice wings. It is reasonably foreseeable that longwall mines will take air from the working longwall face (potentially increasing other risks) in order to try to provide additional ventilation to development.

**Other issues with this section:**Sub-section (3) separates a roadway from a cut-through which contradicts the definition that includes them both together: - “***roadway*** includes a cut-through between intake and a connection between intake and return airways ” |

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|  |  | 1. There is only one anemometer on the market approved for use in Qld and the manufacturer’s operating range is 0.6m/s and above, although it may read down to 0.4 if the impeller is started first. The recognised texts for mine ventilation measurement recommend measurements at these low velocities (0.3m/s) or below should be undertaken by using a puff of smoke and timing the movement down the roadway. This simple velocity measurement doesn’t account for airway size (e.g. Aquila’s airways 10.5m2 as compared Ensham at 32.5m2) and is certainly not risk based.
2. Given the broad application of Part 6 it should have been changed to refer to an airway not a roadway per the rest of the Regulation. Roadways with infrastructure in them such as conveyors, overcasts, sumps, vent ducting or wings have completely different cross-sectional areas to the overall roadway.
3. Mines will require revision of their safety and health management systems and subsequent standards and training provisions. For instance, Sections 347 & 353
 |
| **3 4 5** | **Parts of min e exe mpted fro m ventilation require m e nt**The following parts of an underground mine are exempted for sections 343 and 344—(a) a part sealed off from the rest of the mine workings by a type B, C, or D seal; (b) a goaf area, or abandoned workings in which normal work is not being carried out;1. a roadway that persons are prohibited and prevented from using for normal work or travel;
2. a place where persons are using selfcontained breathing

apparatus to carry out work other than normal work, unless the work is associated with a routine operation in outburst prone conditions. | **Parts of min e exe mpted fro m ventilation require m e nt**The following parts of an underground mine are exempted for sections 343 and 344—1. a part sealed off from the rest of the mine workings by a type B, C, or D seal;
2. a goaf area;
3. a place where persons are using selfcontained breathing apparatus to carry out work other than normal work, unless the work is associated with a routine operation in outburst prone conditions.
 | **Parts of mine exe m pt ed from ventilation require m e nt**The following parts of an underground mine are exempted for sections 343 and 344—1. a part sealed off from the rest of the mine workings by a type B, C, or D seal;
2. a goaf area ***or road way b ein g s eale d*** ; ***(c) aban do ne d w or king s in w hich nor m al w ork is no t b eing carrie d ou t and th e un d ergroun d m i n e m a na g er has d ev elop e d an aban don m e n t m a na g e m e n t plan in accordanc e with s 3 2 6A;***

(d) a place where persons are using selfcontained breathing apparatus to carry out work other than normal work, unless the work is associated with a routine operation in outburst prone conditions. | This amendment removes abandoned workings and roadways where persons are prohibited and prevented from using for normal work or travel.Note that the part highlighted in yellow addresses the concern raised that s 343(4) potentially conflicts with requirements to enter or manage areas that have contaminants present and to undertake mitigating actions.ENSHAM SPECIFIC COMMENT Being forced to seal all areas of the mine will potentially increase other hazards such as Inrush, If a mine does not have Methane and follows the proposed changes of 326A |
|  |  | **Specific fe edback on this s e ction from Industry Ventilation Engin e ers:**Without an exemption from controlled ventilation under the previous 345(c)…” (c) a roadway that persons are prohibited and prevented from using for normal work or travel…” the following activities cannot comply:1. sealing a roadway (Part 10 division 5);
2. testing of mine sealing doors and airlocks (per s156 and s157);
3. annual electrical stat testing of main fans (per Division 5 Electrical control systems);
4. ventilation changes (such as reversals) per s341/342;
5. bleeding gas from a goaf (e.g. in the third heading of an active goaf or in some circumstances the return of an area being sealed);
6. excluding persons from an area where polymeric chemicals are being used (per Recognised Standard 16);
7. hot work (per s265 (2)(e) 8. shotfiring (per s221 (2)(i)

To address the concern of gassed out stubs in development, recommend leaving s344 as it was and amending s345 to: **Parts of min e exe mpted fro m ventilation require m e nt**(1) The following parts of an underground mine are exempted from sections 343 and 344— (a) a part sealed off from the rest of the mine workings by a type B, C, or D seal;1. a goaf area ***or roa d way b eing s eale d*** ;
2. ***aban d on e d workings in w hich nor m al w ork is no t b eing carrie d out an d th e un d er groun d m i n e m a na g er has d ev elo p e d an aban d on m e n t m a na g e m e n t plan in accor danc e with s 3 2 6A;***
3. a place where persons are using self-contained breathing apparatus to carry out work other than normal work, unless the work is associated with a routine operation in outburst prone conditions.

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| (2) The following parts of an underground mine are exempted for sections 343 (1) (a) (b) and (d) — |
| (a) a roadway that persons are prohibited and prevented from using for normal work or travel; |  |

 |
|  | (3) The following parts of an underground mine are exempted for sections 344 — |  |
| (c) a roadway that persons are prohibited and prevented from using for normal work or travel providing that control measures, other than controlled  |  |
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|  |  |  | ventilation, have been implemented for minimising, within acceptable limits, the layering and accumulation of noxious and flammable gases; |  |
| Also recommend defining a “working place” and clarifying definitions “roadways” and “airways”. |
| **3 2 6A** |  | No proposed amendment | **Abandoned Working s*****If it is int e n d e d to aban d on a part of th e m i n e, b efore t he p art is aband on e d, th e Und er groun d Mine M ana g er m u s t d ev elop an*** ***aband on m e n t m a na g e m e n t plan, ba s e d on risk ass es s m e n t, for th e part of t he Mine to b e aban d on e d. The m a na g e m e n t plan m u s t includ e t h e followin g as a m i ni m u m for t h e area to b e aban do ne d:***1. ***The s p e cific area of t he m i n e to b e aband on e d;***
2. ***The anticipate d ga s m a k e;***
3. ***Pillar an d strata s ta bility;***
4. ***Pote n tial for s pon tan eo us co m b u s tion an d con trols;***
5. ***M o nitoring re q uire m e n t s t o e ns ure an acc e p ta ble level of risk;***
6. ***Controls in plac e to prev e nt p ersons fro m e n t ering th e aband on e d area.***

***A co py of t h e a ban d on m e n t m a na g e m e n t plan m u s t b e dis playe d on-***1. ***A notice b oar d situat e d on th e surfac e of t h e m i n e an d acc e ssible by th e coal m i n e w or k ers; and***
2. ***A notice b oar d situat e d un d er groun d in each area wh er e th e aban don e d part of th e m i n e is locat e d.***
 |  |
| **3 9 6( e)** |  | This section refers to the deferral of particular provisions for 6 months. S396 (e) refers to s251, to the extent it relates to a methane detector located as required under section 242(5) or 243B; but s251 is about having a “***Record*** *of tripping of electricity supply*” by a methane detector located as required under… s242(5) or 243B. Section 251 references to 242(5) or 243B are:242(5) At least 1 methane detector must be located in each intake airway at the interface between 2 ERZ1s; and 243B A methane detector located at the entry point to a “relevant zone”.These monitors do not trip electricity, they just to provide a visual alarm. Therefore, s251 does not apply to them at all as it deals with records of a methane detector tripping electricity supply. That being the case why is there a need to extend for 6 months – there is no record required. Unless it is aiming to provide for a deferral of obtaining a detector, but that is not s251. |

**Figure** 1 S243B Return airway that is a relevant zone (Ensham)



**Figure 2** Bord and pillar ventilation inbye of bootend (Ensham)

