



Technical Bulletin / Safety Alert

Unique ID No: DES2012-TBSA-03

Rev: 0

(This document supersedes all previous versions of the above TBSA – N/A)

Subject: NTMS Methane Shutdown Systems

Date: 20th August 2012

Applicable to: VLI Driftrunner, VLI Brumby & VLI JUG-A-0

Note: Minimum PPE required to carry out any inspections contained in this TBSA shall be protective clothing & footwear, safety glasses, hearing protection & any site specific requirements. A JSA or equivalent should be carried out prior to performing these tasks.

Occurance:

Nautitech Mining Systems Pty Limited (NTMS) recently released the attached Compliance Safety Alert No. MS00007 in relation to the compliance of the NTMS methane shutdown system with NSW Gazette No 10, 2008.

VLI Diesel Division (VLIDD) advises that NTMS Methane Shutdown Systems are installed to all VLI JUG-A-0 machines operating under diesel engine system design registration nos. MDR074246DES, MDR074246DES-1 and MDR114991DES. NTMS Methane Shutdown Systems are an optional installation to VLI Driftrunner and VLI Brumby machines.

Recommendations:

Where NTMS Methane Shutdown Systems are installed to VLI equipment, ensure the methane shutdown system is managed and maintained in accordance with the manufacturer's (NTMS) recommendations and the attached NTMS Compliance Safety Alert No. MS00007.

Where assistance is required in relation to NTMS Methane Shutdown System compliance and management, please contact VLI Diesel or NTMS directly.

Supporting Documentation:

NTMS Compliance Safety Alert No. MS00007

Please ensure this document is circulated to all relevant personnel within your organisation.

Should you have any further queries please contact your VLI Diesel Representative.

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Date: June 25, 2012

Reference: MS00007

Compliance Safety Alert

Manufacturer: **Nautitech Mining Systems Pty Limited (NTMS)**

Equipment affected: **Methane Shutdown Systems**

Background

NTMS recently received a call from a customer regarding compliance of the NTMS methane shutdown system with NSW Gazette No 10, 2008, in relation to the Ex d to Ex ia timeout in the presence of over 1.25% methane. NTMS started its own investigation and voluntarily contacted the DII informing them of the issue

Normal operating conditions

NTMS Methane Shutdown Systems currently widely in use:

- Operate normally under Ex d protection. When isolated, either automatically or manually via enclosure isolator, the system becomes Ex ia protected.
- Have a software programmable Ex d -> Ex ia timeout period to support driver notification, gas sensor diagnostics, and calibration with verification procedures. Ex d -> Ex ia timeout periods typically range between 10 sec and 5 min. After expiry of the timeout period, the system becomes Ex ia protected.

Systems can be instantly isolated to Exia at any time by means of the isolator on the door of the FLP enclosure.

This Bulletin has been drafted after consultation with the NSW DII.

Investigation

The methane shutdown system operation is controlled via a pneumatic pressure switch supplied by the vehicle's main air valve.

If the operator fails to switch off the vehicle air after a methane level shutdown, the system may periodically re-power non-intrinsically safe componentry in the flameproof enclosures.

The potential exists for the system to remain powered up in an atmosphere containing over 1.25% methane.

Circumstances

This mode can only occur if the operator fails to switch off the air supply to the vehicle at the main switch after a methane triggered shutdown. Note that this power up situation will not arise on the C7 and C9 electronic engine packages.

Recommendations

When a Methane level shutdown has occurred the vehicle operator must:

1. Identify cause of shutdown that will be indicated on the NTMS display.
2. Secure the vehicle following your mine site procedure.
3. Switch vehicle air off at drivers switch and secure as required by mine site procedure.
4. Manually isolate NTMS system using enclosure isolator and tag / lock, as required by mine site procedure. This step is an additional precaution to ensure Ex ia state (both the enclosure isolator and drivers switch must then be turned on for the system to energize).
5. Follow the standard mine site procedures re notification, evacuation etc.
6. If in doubt, check procedure with mine site safety officer

Before attempting to restart the system after a methane triggered shutdown, ensure methane levels are within safe operating limits for the machine using a

suitable handheld gas sensor and unlatch NTMS enclosure isolator only if and when safe to do so.

Longer term solution

The new NTMS RapidSense Ex ia Gas Sensor is currently going through the certification process. This will convert systems to full Ex ia operation, permitting continuous use in the presence of gas.

NTMS is also able to immediately offer a system upgrade involving a pneumatic pulse valve and a software change. The software change will shorten the timeout period to Ex ia protection when methane over 1.25% is detected, while the pulse valve will ensure that the system cannot repower should the operator fail to switch off the air supply.

NTMS suggests that at or before the time of the next Diesel Engine System Code D inspection, one of these upgrade options is implemented.

Individual mine sites should identify whether an upgrade is required prior to the next Code D inspection through formal risk assessment.

Following a short technical implementation period, new systems will have the pneumatic valve and new software factory fitted. The RapidSense Ex ia Gas Sensor will be standard on new systems as soon as certification is complete.

NOTE: Please ensure all relevant people in your organisation receive a copy of this bulletin, and are informed of its content and recommendations. This bulletin should be processed in a systematic manner through the mine's information and communication process

Please contact Mat Graham at NTMS for further information on 02 8014 8936,

0400 268 755 or mat@ntms.com