SAFETY ALERT

Ref Document No.	SA17001	Issue No.	1
Subject	Potential concerns regarding Nautitech (NTMS) Methane Systems fitted to Underground Diesel Equipment in Group I Hazardous Areas		
Release Date	1st of July, 2017		

Purpose
To advise general industry of potential safety / compliance concerns regarding the installation and use of the NTMS Methane Systems fitted to Underground diesel equipment for use in Group I Hazardous Area's.

Applicability
All underground diesel vehicles fitted with NTMS Methane System for use in Group I Hazardous Area's.

Background

PPK has been conducting a ASNZS60079.25 audit of the Intrinsically Safe (I.S.) MONEx system, as installed on the COALTRAM®'s. This is part of the response to SA17-06 released by the NSW mines regulator to the general industry.

Further to this, PPK is conducting general entity and interconnection reviews with respect to the third party designed and provided systems. This includes all systems that have been installed by PPK on the underground Diesel Machines and required evaluation in accordance with ASNZS60079.25.

PPK have supplied / fitted many COALTRAM®'s and other mobile plant with NTMS Methane Systems. As such, it was necessary for PPK to audit the interconnections of the system, given that the system is provided with an audit reference to cover the supplied product and associated arrangement.

Given that the Methane System has received valuable product updates over the years, configurations and replacement components have some variances (from our understanding different Batteries and Display Modules are available). Accordingly, we will list part numbers to ensure an accurate depiction of our concerns where directly relating to the interconnection of specific products.

As per the Safety Alert SA17-06, PPK would like to highlight that the defined potential concern from the NSW mines regulator is regarding the compatibility and interconnection of Flameproof Alternators to I.S. equipment. No specific equipment was listed outside of its explosion protection technique in the referenced Safety Alert.

This document should be read in the same context as the SA17-06, given that the listed equipment concerns are related to machine installation and interconnection as a whole rather than direct product observations.

Information

PPK have determined the following potential concerns with respect to the Interconnection of the Nautitech Methane System:

1. PPK released EB17004 nominating alternator voltages that should be considered when completing an ASNZS60079.25 reviews. The worst case peak voltage for the 12V alternator nominated in EB17004 is 45Vpeak.

   The Nautitech methane system Battery is directly connected to the machine alternator and listed with a Um value of 24V. This value is stated on the component Certificate of Conformity(CoC) reference IECEx 14.0009X.

   After review of the IECEx 60079.11:2011 standard (Clause 7.5.1 Transient effects), it states that the semiconductor devices shall be capable of withstanding the peak of the a.c. voltage and the maximum d.c. voltage.

   By converting the listed Um from Vrms or Vdc to peak voltage as depicted by the standard reveals approximately 33.94V.

2. Closer inspection of the Nautitech 7.2V Battery Pack (Part Number ME5070-2-99-151, Ref CoC IECEx ITA 14.0009X) used to power the methane system, has a two terminal Non-Intrinsically safe (Non-I.S.) "alternator input" connection (JA-2) with a corresponding Um of 24V. The IECEx CoC states that this "alternator input" connection is also an Intrinsically Safe output. (reference IECEx ITA 14.0009X). There for, when the alternator is not producing a voltage (Um=0), the I.S. outputs are applied to the Non-I.S. electrical equipment interfaced to the JA-2 terminals (for example Lights, Camera Systems, Hour Meters, Alternators etc.).

3. The wiring harness between the two Nautitech flameproof enclosure's (ME5070-2-99-151 7.2V Battery Pack - IECEx ITA 14.0009X connecting to the ME5070-2-99-139 Remote CH4 Monitor – IECEx ITA 13.0021X) on the NTMS Hawkeye Master Methane System carries both I.S. and Non-I.S. electrical circuits in a single cable which is not allowed under AS/NZS 60079.25 – 2011 (Clause 8).

Recommendations

Plant owners and operators should review all diesel machinery utilising the NTMS Methane system that interconnect to Non-I.S. equipment with respect to supplied information contained within this bulletin.

PPK were not able to gain sufficient clarity around the above issues and advise diesel machine owners and operators to seek further guidance from the equipment OEM (NTMS) regarding the potential concerns outlined in this bulletin.

PPK also advise diesel machine owners and operators to review this bulletins contents when carrying out ASNZS 60079.25 audits, risk assessments and associated machine compliance audits.

Until the potential concerns listed in this bulletin can be resolved, PPK Mining Equipment Pty Ltd will not be installing, commissioning or conducting maintenance (excluding disconnection) on diesel machines for use in Group I Hazardous Area's.

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