

Workshop Proceedings: Intrinsic Safety of Emergency Responder Electronic Safety Equipment

Held Wednesday 19 September 2012 in Northbrook, Illinois

EXECUTIVE SUMMARY

A one-day workshop was held in Northbrook Illinois on Wednesday 19 September 2012 to seek clarification of recommended parameters and levels of intrinsic safety for fire service electronic safety equipment (ESE) in hostile fire ground environments, with a particular focus on portable communication radios. These are the proceedings of that workshop.

This workshop was conducted as part of a larger research effort to address interoperability and compatibility of ESE. The intrinsic safety of ESE is a critical performance characteristic that impacts interoperability and compatibility. Part of the motivation for this workshop is rooted in the confusion that currently exists on intrinsic safety requirements and appropriate product standard references that should be provided by NFPA standards

As a result of the presentations and group discussions at this workshop, the following summary observations have resulted, in no particular order of priority:

- 1) **Periodic Re-Evaluation.** The need for intrinsic safety requirements for different ESE should be re-evaluated on a periodic basis, since the technological landscape is continually changing and subject to on-going advancements that impact the respective requirements.
- 2) **Interoperability.** Consideration should be given to promote concepts of interoperability, since a centralized interoperable platform that combines and maximizes the efficiency of multiple power supplies would potentially also alleviate other concerns (e.g., the current trade-off for reduced power supplies to comply with more rigorous Division 1 requirements).
- 3) **Consistency of Requirements.** Consistency of intrinsic safety requirements across all emergency responder ESE is a sensible goal that should be founded on the inherent technological differences of ESE that justify different intrinsic safety requirements. Action items that should be considered include:
 - a) NFPA requirements for intrinsic safety should be revisited and considered for all ESE, using an approach similar to the recent analysis provided for PASS by the Intrinsic Safety Task Group for the NFPA ESE Technical Committee.

- b) This effort should be considered by the PPE Correlating Committee since it affects multiple Technical Committees under their direction.
- 4) **Defining the Fire Service Landscape.** Better define the requirements for intrinsically safe ESE by clarifying fire ground environments and fire fighter needs. Examples of factors that should be considered are:
- a) Division 1 and Division 2 levels of safety are presently based on normal or abnormal probability of occurrence, but this is meant for the electrical equipment installed at a fixed location rather than portable equipment moving in and out of hazardous locations.
 - b) A likely scenario for fire fighters is a hazardous environment where it's not expected, such as a gas leak, and in those cases the equipment on-site (without intrinsic safety protection) would arguably introduce a more realistic danger than the fire fighters own equipment.
 - c) Since intrinsic safety is generally applicable across all applications, clarify the unique features of a fire ground with other applications (e.g., petrochemical).
- 5) **On-Going Dialogue.** Further dialogue should be facilitated among the intrinsic safety product standards developers (i.e., FM, TIA, UL, etc), manufacturers, and the user community, to clarify additional details needed for the proper references between the enabling standards (i.e., NFPA) and the product standards.