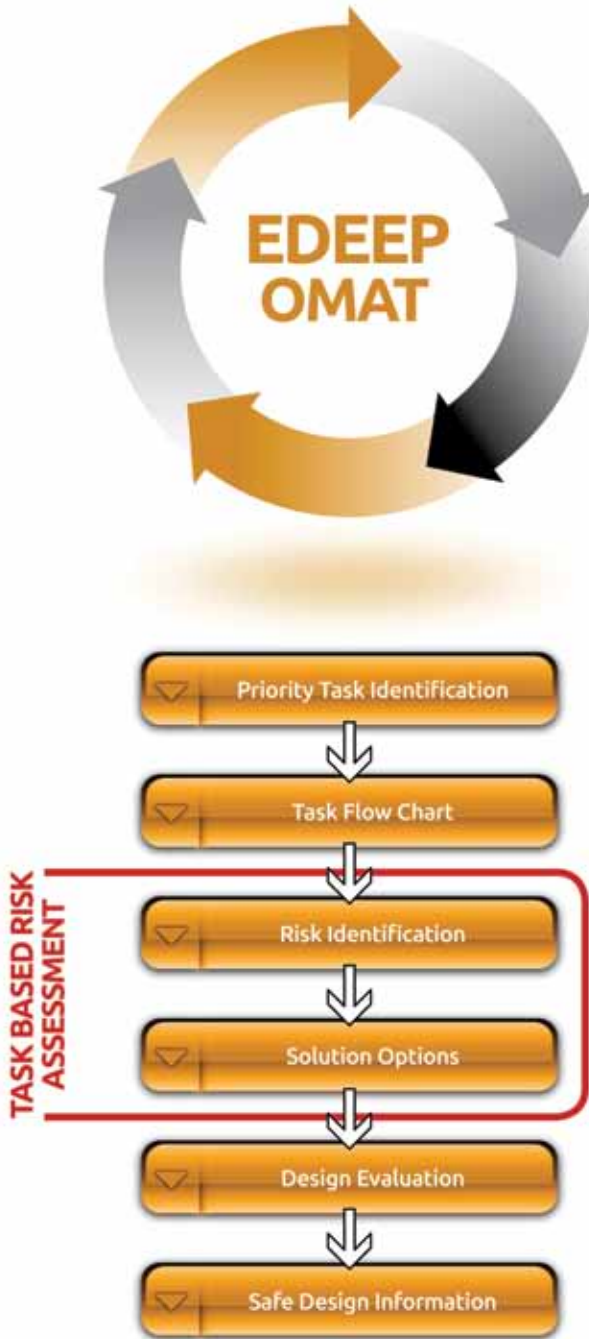


SECTION 2

EMESRT: Position on standards



SECTION 1

Introduction

SECTION 2

EMESRT Position on Standards

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Procurement Document Forms

SECTION 4

Design OMAT Training Manual

SECTION 5

Design Philosophies

EMESRT: OUR POSITION ON STANDARDS

The EMESRT Terms of Reference lay out our Vision, Purpose and Scope.

EMESRT's Vision is:

A global industry free of fatalities, injuries and occupational illnesses associated with operating and maintaining exploration and mining equipment.



As the illustration suggests, EMESRT believes that Standards, whether they be technical or process oriented, don't enable progress – on their own, they don't move the wheel up the hill. Instead, Standards provide the wedge that defines minimum requirements - stopping improved equipment designs from slipping back.

The process of moving the wheel up the hill is driven by initiatives like EMESRT - moving the wheel so designs improve and the Standards will follow and make progress upwards too.

Even when Standards improve, out of necessity they must have a degree of generality. Consequently, compliance with any particular technical Standard does not necessarily imply that risks are satisfactorily controlled in any specific situation.

As a result, EMESRT believes that hazard identification through task analysis and risk assessment should be a part of the design process, rather than determining compliance with technical Standards alone.

THE RATIONALE:

Recent research in the area of Standards and design supports the EMESRT position, suggesting that technical Standards provide designers with instructions and guidance on how, and for what situations, to design. They encapsulate the learning from many experts in an organized manner, usually in the form of solutions to design problems (e.g. the size of holes in mesh guards which will prevent finger access to dangerous parts, or the standard sign for representing a particular danger).

Fadier and De la Garza (2007) found that designers place a great reliance on Standards as measuring sticks to judge their design, and as a way of limiting their legal responsibility. If something is not in the Standard, then they may feel that it need not be considered. This reveals a danger of Standards which are incomplete, or inappropriate in a given situation, or not updated with recent developments. They may lull the designer into a false sense of security and may become restrictions for thinking about users and their requirements.

A STEP CHANGE:

To address this need, EMESRT works to achieve step changes in equipment design by aligning expectations based on risk as identified in its set of Design Philosophies. The Design Philosophies are an attempt to share with OEMs the mining industry's perception of risks to operators and maintainers with respect to exploration and mining equipment. Design Philosophies are intentionally not technically prescriptive about solutions to allow the OEM's equipment design process to consider the issues and identify design controls or features that effectively address unacceptable risk. Design Philosophies (DPs) ideally spark the engineering creativity of the OEM designers to develop new solutions and innovative ways to reduce risks.

Improvement of this equipment design issue can also be addressed by defining the processes to be used by the design organisation (ISO, 2000; Standard Norge, 2004). This involves using a combination of goal-oriented requirements and risk analyses with the participation of experienced users to arrive at detailed design solutions that are better adapted to the user situation.

Kjellen (2007) argues this is necessary, because it is in just these areas, namely the incorporation of the diversity and complexity of human operators and of use, that the more traditional standards have been weak.

The EMESRT approach also encourages designers to go beyond equipment design 'Standards' using task based assessment to underpin design application with techniques such as OMAT.

A recent American National Standard is an exception to the technically prescriptive Standards that are commonly used for equipment design. ANSI/ASSE Z590.3 – 2011 is a process Standard, titled 'Prevention through Design Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes'. This new Standard outlines a process of improving design that aligns very closely with that suggested by EMESRT, a development that supports our approach.

...A new 'wedge' in the uphill journey to optimal equipment design.



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