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Joint Industry Project: Improvised PP and Informatics Integrity Reducing Occupational Risks

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Abstract

This paper presents the background, approach and overview of the Phase 1 results of a five-phase Joint Industry Project proposal. Research commenced in 2006, to establish the need and methods to reduce Oil & Gas workforce exposure risks. The reports prepared throughout Phase 1 will become the shared property of the JIP participants. Not all details can therefore be disclosed within this paper. Presentation of the paper is intended to offer the opportunity to operators and organizations to be directly involved or associated in other ways with this initiative.

The advancement of technology in the area of PPE, integrated communications and emergency response systems will contribute to safety in petroleum industry areas such as; worker confidence in self and co-worker safety; remote vital signs health monitoring in conjunction with personnel tracking; non-reliance on human reaction and training for respiratory protection in toxic atmospheres; remote audio-visuals, relevant scenario data acquisition and optimized dissemination for effective emergency response.

The JIP is focused on bringing together all technologies within a single integrated solution. It will develop further the concept established during Phase 1, taking account of the established PPE performance standard criterion, to protect personnel while effectively and efficiently communicating reliable data for situational awareness. It is being shown that significant risk reduction benefits are achievable at all upstream E&P sites and facilities, whether in arctic or tropical locations and whether subject to technological hazards between construction and HPHT sour operations. Reducing the risk of incurring casualties during emergency response is a predicted achievable project objective.

Only by taking a green-field approach was it possible to identify the problems associated with existing PPE and communication methods so as to target a fully integrated solution that isn't currently available.

Introduction

There are thousands of everyday hazardous work activities ongoing around the world. Companies, accountable for the safety of their workforce, provide the best combination of protective clothing and equipment relative to their to job functions, selected from a plethora of options. Manufacturers of equipment each specialize in their area of expertise, whether for respiratory protection, cold weather protection, impact (head and eye) protection or devices worn to relay information to name just a few. It's almost impossible to coordinate the physical interfaces between them all. Combining wearer comfort with the level of protection required isn't easy. Often less than ideal combinations have to be worn that can affect productivity and protection integrity. This is complicated further by the need to don additional emergency and survival equipment when under stress.

The research has shown that problematic PPE interfaces could be overcome with the support of industry and equipment manufacturers and the integrity of the wearer's protection 'system' can be improved.

To put the need for PPE improvements into perspective it should be explained that the past years research and studies into PPE were initiated as a result of a different but closely related start point. Establishing how, using today's technology to improve data communication for emergency response (ER), was the first goal. There are many sub-systems and processes required to be coordinated in all respects for emergency response integrity assurance, which falling under one umbrella system [Figure 1.]