

Zero spill technology ensures upstream HSE results

IN LIGHT OF the ever-increasing world demand for hydrocarbons, sustainable development continues to be of foremost importance within the global upstream oil and gas industry health, safety and environmental (HSE) practices.

Today we use around 75 million barrels per day (mbd) of oil, and daily consumption of gas is 220 billion cubic feet (bcf).

By 2010, even with modest economic growth, world consumption is expected to rise to 90 mbd of oil and 280 bcf of gas per day.¹

Recent changes in environmental regulations and industry perspectives have made proactive practices much more desirable to both the drilling contractor and the E&P company.

More stringent waste management regulations in such countries as Canada and the United States have resulted in a substantial increase in treatment and disposal costs.

These new costs, coupled with a heightened awareness of environmental impacts and an expanded emphasis on environmental protection, have provided a greater incentive for operators to improve oilfield processes and practices to reduce or eliminate wastes.²

According to a report completed by an International Petroleum Industry Environmental Conservation Association (IPIECA)/International Association of Oil & Gas Producers (OGP) Joint Taskforce in 2002, the global oilfield's health and safety performance observed some setbacks over the past decade.

In 2000, the frequency of injuries that were sufficiently severe to require one or more days to recover experienced a reduction of more than 50% compared to the 1992 figure. Unfortunately, the rate of fatal accidents did not see a similar decline.

Proactive solutions are available to

address these HSE issues in the upstream oil and gas industry. **Katch Kan Limited**, a company committed to environmental sustainable development, is one organization that continues to lead the way in providing these solutions. Their zero spill technology directly supports the protection and preservation of the land and water in which the upstream industry operates by reducing drilling fluid releases and increasing operational safety on drilling and workover rigs.

"Since its incorporation in 1994, Katch Kan has been a pioneer in the research

This innovative system of technology works together to significantly minimize drilling fluid contamination, optimize the health and safety of those involved with upstream projects, and enable the production to occur in an eco-efficient manner.

Each component of the ZSS addresses a specific problem encountered during rig operations.

Among the features of the company's ZSS is the Kelly Kan, a lightweight mud bucket that fits all drillstrings up to 7 1/2-in. that contains, controls and redirects drilling fluids.

A lightweight tray installs directly below the drill floor in minutes without the use of tools to collect and recirculate drilling fluid.

A drilling fluid splash guard eliminates splashing and flooding of the rotary table and creates a busing and slip handle guard that keeps feet out of the rotary table. Hoses and other foreign objects are also kept out of the master bushings while under rotating conditions. The guard flexes down to allow access of the slips.

A junk basket minimizes or eliminates expensive fishing trips by keeping foreign objects from going down the annulus. Slots allow fluids

back into the flow nipple for recirculation. It is designed with 5-in. of telescopic action to allow for rig settling.

A lower collection tray catches any fluids escaping the upper collection system.

A tongue and groove design with over center latches provides for installation without tools. Four 4-in. drain boxes and hoses return the captured fluid to the mud tank.

NEWEST COMPONENT

The most recent component enhancing the ZSS is the Katch Mat, specifically designed to reduce rig floor accidents, and reduce lost time incidents and



The fully adaptable lego-style design of the Katch Mat allows it to be expanded and configured to accommodate any shape.

and development of proactive drilling fluid containment and redirection," states President & CEO, **Quinn Holtby**.

"Any technology that manages to contribute to environmental sustainability, the health and safety of the rig personnel, and the bottom line of the oil and gas industry, should have a significant role in our resource-driven economy."

Katch Kan supplies a new standard in pollution prevention and safety for all stages of the upstream process, from the exploratory drilling rig to the abandoned wellhead, through its achievement known as the Zero Spill System (ZSS) that, according to the company, achieves 100% containment of drilling fluids.

deaths to floor crews due to slips and tong handling procedures on land and offshore rig operations.

The four key benefits of this temperature and invert-resistant matting include an anti-slip feature that provides excellent traction with protruding 'buttons' rather than steel studs.

The shock absorption capability of the mats reduces fatigue as well as back and other injuries. Containment channels between the buttons redirects fluids to a containment system beneath the work floor.

Safety is enhanced because the mats can be color coordinated for different zones (i.e. green mats for safe zones, red mats for danger zones, yellow mats for caution zones).

The fully adaptable lego-style design of the Katch Mat allows it to be expanded and configured to accommodate any shape (i.e. rotary table, walkway to table, even up and down stairs).

Should an area of the mat become damaged for any reason, one only has to change out a particular modular square versus the entire mat. At the end of the day, the rig floor has become a safer and dryer environment.

A bushing and slip handle guard keeping feet and unwanted equipment out of the rotary table has been put into action; rig crews are prevented from working or entering into danger areas; and lost time accidents and incidents due to injury or death are drastically reduced and eliminated.

Looking ahead over the next several decades, the global upstream oil and gas industry faces many HSE challenges as well as opportunities. Their health and safety and environmental performance are crucial to ensuring our global sustainability.

John Karish, BP America's HSE Leadership Project Manager, recently stated it the best: Safety is the very foundation of world-class drilling and well operations performance.³

A combination of applying technological advances and improving corporate policies and implementation strategies will continue to play a major role in making better operators of the companies that form our industry.

REFERENCES

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