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## PLAYING IT SAFE WITH ENTERPRISE ASSET MANAGEMENT (EAM)

### EAM can be implemented to improve HSSE management in the oil and gas industry

Oil and gas is a high-risk industry. Operational risks are huge, with challenging geological conditions and security issues. Growing pressure around the industry's relationship with the environment has resulted in stringent compliance requirements. To achieve robust risk management, HSSE (Health, Safety, Security, Environment) must be at the centre of exploration and production (E&P).

Using an EAM solution to drive HSSE management enables the integration of all business activities with core HSSE objectives. This ensures regulatory compliance as well as compliance with external audits from investors or joint venture partners; excellent transparency and accountability; better brand management for the benefit of all stakeholders, and optimum performance and productivity.

By supporting a demonstrably safer operational environment, EAM supports employee attraction and retention - an increasingly important issue due to a shortage of skilled workers. Also, by enabling strong HSSE processes EAM can result in efficiencies and cost-savings that run into \$millions, whereas weak processes can be crippling. A pretty good investment - especially considering it can have an ROI in months, not years.

### Extending an asset management system to target efficiency and safety

To take EAM to a level where it targets efficiency and safety as well as proactive asset management, an implementation has to have some key features and functionality.

By implementing work permit functionality, EAM manages the safety levels of the people working on the assets/equipment. For example, if the hazard was drowning, the protocol would be floatation vest and safety harness. Fire, explosion etc - all potential hazards are identified and assessed, and protocols, precautions and controls set up to mitigate the risks. Where precise work on electrical equipment is required, employees have to be able to implement Lock out/Tag out (LOTO), where electrical power is switched off and on again.

Integral checklists are incorporated to ensure HSSE procedures are correctly followed during routine operations at all levels. The scope and breadth of these processes covers everything from equipment training and protocols, to cold water survival training for each helicopter user, right through to mosquito spray applications that mitigate against the risk of malaria.

Since a lot of work is at remote sites, a good EAM system provides mobile facilities, enabling a real-time view and a more responsive risk management process. And because all procedures are available in real-time, environmental managers can easily keep on top of challenging compliance regulations.

Strategies for asset procurement and maintenance can be designed to meet and exceed regulations, and also to ensure all future purchases and maintenance operations are aligned with the company's HSSE objectives. For example, a company may decide that for electrical motors it must buy A-rated equipment. If a motor is not A-rated then the system will block the purchase. EAM can create processes that record energy consumption per asset/system, and also capture greenhouse gas emissions per asset/facility, enabling tax rebates.

Predictive maintenance and inspection modules within an EAM solution enable constant monitoring and analysis of equipment health, so it can be changed or repaired when performance decreases. For example, when the system detects that a pump that transports oil from a rig to storage is consuming more energy, even if it is still operating correctly, this indicates that something is wrong and needs investigation. Also, reliability calculations and reports are automatically generated by the system.

# An event-driven platform enables better HSSE management

In oil and gas things can move fast, people move around a lot, and companies need a record of what has gone on. In a good EAM solution, every detail and every event is captured. Essentially it operates as an event-driven platform, integrating and aligning every single action, every nut, bolt, screw of every piece of equipment, with HSSE processes and objectives.

Take the process of workflow approval for example: a new forklift is needed - so the selected equipment goes through various automated stages to ascertain if it meets HSSE safety guidelines and energy consumption objectives and is within budget, as well as what training and safety protocols are required.

Change management can be captured and fully approved within the EAM system to ensure that any major changes on equipment or systems follow HSSE protocols. All changes - big or small - should have HSSE at the centre. A change management module means that before doing a change, the health and safety executive responsible will see the request and can approve or not approve the change.

Equipment evaluation is crucial, and having the ability to evaluate equipment replacement versus repair has considerable economic as well as safety implications. Most of the time it's more expensive to buy something new, and it's often logistically challenging to get equipment on site. Also, when you are buying a new pump, motor, well-head, drill bit - when you first start using it, there is often a period of inefficiency before it is calibrated for optimum performance. However, a repair is likely to be efficient very quickly. Instead of unnecessarily buying a new pump, this cost-saving could be invested in new personal protection equipment.

An intelligent alerts and event management functionality can extend to individual equipment calibration - enabling quality control, traceability and easy documentation. Evidently, the risks of incorrect calibration are much higher than the cost of doing it right, both from an economic perspective and in terms of human and environmental safety.

Although risks can be mitigated, they cannot be eradicated and oil and gas remains a high-risk industry. Being able to demonstrate excellent HSSE management not only means that accidents are less likely, it also means that should any incident occur due to exceptional circumstances or human error, there is evidence to demonstrate adherence to HSSE processes.

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