

Supporting HSE Needs for Oil & Gas Through Effective Asset Management Practices

*For the Upstream, Midstream & Downstream Sectors of the
Oil & Gas Industry*



Product and services providers in the Oil & Gas industry operate in a vibrant, fast paced environment that is constantly being challenged to find, extract and deliver cheaper and cleaner energy to the market. In addition to these market pressures, they also face stringent regulations in protecting the environment and ensuring the health and safety of their workers. In order to sufficiently meet these and other obligations, it is becoming increasingly important that their automated systems, such as their Computerized Maintenance Management System / Enterprise Asset Management (CMMS / EAM) solution, provide the ability to track, document and analyze the activities that help them comply to their Health, Safety and Environmental (HSE) program goals. Oil & Gas organizations need to consider the following critical asset management practices to guarantee HSE compliance and completeness:

- **Improve Regulatory Compliance**
- **Adherence to Process Safety Management (PSM) objectives**
- **Comprehensive Event and Incident Tracking**
- **Facilitate Management of Change (MOC)**
- **Document and Resource Management**

By implementing the asset management practices above, your organization can properly maintain your critical asset infrastructure while meeting HSE requirements and delivering a greater peace of mind to both your customers and employees.

Improve Regulatory Compliance

Oil & Gas is a vital industry that inherently involves significant risk for people and the environment, so regulatory compliance is not just a buzzword or a simple concept. Addressing regulatory compliance objectives drives organizations to identify potential issues before they happen and then execute and document the preventive measures taken to avoid those issues and any necessary remediation activities. Organizations also need to analyze relevant information to spot trends in order to facilitate proactive notification and actions that support continuous improvement initiatives.

Your CMMS / EAM solution should be able to translate operational system alarms, operational thresholds, meter readings and even asset state changes into automatically generated tasks to support activities such as volatile organic compounds (VOC) monitoring, stack testing and commissioning and decommissioning compliance activities. You should have those detailed procedures, documents and bill of materials (BOM) requirements defined for those activities and be able to manage not only the scheduled, but also the abnormal occurrence of recordable actions. Your regulatory information and documents need to be easily accessible and managed to help ensure that important information is appropriately available when needed. Interactive dashboards provide relevant charts, graphs, KPIs and data to measure and leverage all your asset and maintenance information. With those dashboards, you can spot and manage trends and any other activities that impact compliance objectives and continuous improvement goals or targets.

Adherence to Process Safety Management (PSM) Objectives

When executing work in a highly regulated environment, it is vitally important to not only address regulatory compliance concerns, but to also ensure that all execution processes are understood and followed to guarantee the safety of the workers, surrounding area and communities. In order to adhere to PSM objectives, you need all information and documentation related to work being performed, the area or department requiring the work and any corresponding formal procedures and / or equipment all together in one place and easily accessible. This will help ensure that the skilled resource is utilizing the work package properly and completely, minimizing the opportunity for the task(s) to be performed incorrectly. Such work can also be flagged as a 'Safety' work order so it can easily be tracked through the execution process. Some common documentation / procedure items that are part of Safety work packages include:

- Job safety analysis
- Safe work instructions
- Equipment / Task Lockout / Tagout (LOTO) procedures
- Permitting requirements
- Lists of Personal Protective Equipment (PPE) needed
- Procedure excerpts for ISO and Mechanical Integrity Program

Frequently, PSM work requires a proper definition, review, approval and assignment process to take place when dealing with sensitive / critical equipment or maintenance tasks. You need the ability to manage this process through an effective use of unlimited status designations, secure status updating and approval level security designations for users, as well as comprehensive notification and messaging capabilities.

Comprehensive Incident / Event Tracking

Not every compliance event requires in-depth work order planning and resource allocation. In fact, many times the compliance item just needs to be noted, confirmed or detailed as being addressed without the requirement of a formal work order. In those cases, you need the ability to sufficiently record such events so that a full audit history of compliance can be documented and more importantly, produced easily for audits, investigations and analysis of HSE programs. Your organization will most likely have many types of events, so you will need to be able to define all events and describe their individual compliance procedures required. Common event types are:

- Safety and Environmental inspection findings
- Safety observations
- Accident / Incident records
- Hazardous material spill or movement tracking
- Shift logs and notes

Ideally, your CMMS / EAM solution would allow each event definition to be individually designed, so each type of event can have unique sets of coding standards and unlimited definable fields for capturing specific information based on the specific needs of the situation it is documenting.

Additionally, such records should allow outside file links to help describe necessary procedures, photographs, videos or associated reports. This kind of comprehensive documentation of non-work order events provides a rich audit history encompassing the entire spectrum of an asset's lifecycle, not just work orders performed. Since the policies and procedures of an organization's HSE program impacts many aspects of an operation, it is extremely beneficial to integrate other enterprise solutions that address HSE concerns with the asset-based events in your CMMS / EAM. Integrating your systems and allowing them to seamlessly share information will streamline your organization's workflow, HSE processes and performance and minimize the opportunity for miscommunication and delays in execution.

Facilitate Management of Change (MOC)

In today's world, change is a constant. Whether that change comes from external regulation modifications, internal reorganization, operational changes or continuous improvement activities, your organization needs to stay informed and prepare resources to react accordingly. Your CMMS / EAM solution should support your organization's ability to incrementally change and improve business processes as the staff evolves toward Best-in-Class performance objectives.

During the lifecycle of capital assets, it is important to capture important milestones in detail, track the operational status of critical equipment and alert the appropriate resources of their tasks when preparing for dormancy / operation, decommissioning / commissioning or moving assets to another location. With the change in asset operational status, planned activities can be automatically produced and completed with necessary documentation, BOM and resource requirements identified. The appropriate HSE resources can also be automatically notified of the change. As assets are needed in other areas of operation, the movable assets capability within your CMMS / EAM should provide the means to identify all included and related assets, notify appropriate staff for recording the approval of the transfers, complete visibility of those assets in transit to the new location and their receipt sign-off at the final destination. This important stepwise auditing ensures that essential steps are followed and auditable in order to properly account for change in all affected areas. Material Safety Data Sheets (MSDS), Hazardous Material Handling procedures, shipping notices, ISO procedures, pictures and other related documentation should also be automatically associated with the assets being transported.

Whether work is required as part of the transfer or the assets need ongoing maintenance at the new location, it is a best practice to implement a formal approval process that requires the designation and notification of personnel for review and approval prior to any maintenance activities. For more complex processes and

procedures resulting from major overhauls, shutdowns or outage activities, detailed work steps can be laid out in a work breakdown structure and fully managed as a complete activity included in the MOC process. In order to expedite the process and mitigate the delays that can occur in such procedures, you may want to consider a CMMS / EAM solution that enforces work requirements and allows approvals to be executed on any computer, tablet or smartphone.

Document and Resource Management

To successfully execute a comprehensive HSE program, an organization must be able to efficiently provide documentation to resources for the right activities, the right equipment and in the right situation. Having the ability to link to any file, URL or video and associating those documents and carrying them forward to all activities involved will help the end user be fully informed and prepared to efficiently, safely and effectively carry out work tasks. For example, specific documents associated with a department, such as safety or work process instructions, can be designated as always being part of any work activity that involves equipment assets from that department. This streamlines document management and minimizes the specific associations that need to be made while ensuring those applicable documents are appropriately included for reference.

With all the process, procedures and documentation in place, the human resources are the key to performance. The resources that carry out the activities must be appropriately trained and certified to properly execute the necessary job steps. The CMMS / EAM solution must be able to record any training and certifications that the employee has completed, as well as identify expiration and / or renewal dates. From such records, the solution would then be able to identify any retraining or recertification needs prior to them being out of compliance and thus avoiding resource availability concerns. A resource management solution should record the following items:

- Employee skills
- Employee labor rates
- Supervisor or location assignments
- Organizational roles
- Limits for work and purchases approvals
- Documents related to employee
- Emergency Contact Information
- Unlimited additional fields, as needed

In addition to the training and certification needs listed above, the health of the employee is of utmost importance, and the ability to track health considerations, such as hazardous exposure information, safety incidents, lost time accidents and other fit-to-work documentation, is an important aspect of a complete CMMS / EAM solution. Additionally, if a hazardous substance or an item that carries exposure limits is used while performing work activities, in order to mitigate any unintended consequences or exposures from audit

situations that may require further employee health considerations or procedures, you should be able to cross reference that exposure to the employee resource who worked on the activity.

Summary

Conducting business with care and respect for people and the environment is a primary concern for the Oil & Gas industry since it is challenged with adhering to some of the most stringent HSE regulations while effectively maximizing asset performance, reducing downtime and controlling cost. A robust, user-friendly CMMS / EAM solution is an important step toward becoming a Best-in-Class maintenance organization, but you also need additional functionality to support your HSE programs. Understanding the strong correlation between reliability and safety, the TabWare CMMS / EAM solution provides the necessary functionality to record and track any type of incident or audit finding and link documentation and procedures, as well as improve equipment reliability.

TabWare supports reliability and maintenance process improvement by providing historical data, helping control maintenance practices and functioning as a tool for implementing improvement. To be effective, maintenance organizations need quick access to critical information to perform tasks effectively, efficiently and safely. Integrating incident tracking, permit requirements, material safety data sheets and other HSE concerns with your adopted reliability and maintenance strategy can lead to significant, sustainable cultural improvements.

AssetPoint has extensive experience in providing CMMS / EAM solutions to customers in the Upstream, Midstream and Downstream Oil & Gas sectors. For more information about how we can help address your asset management and HSE needs with our integrated CMMS / EAM solution, contact us at: 864-679-3447 or heather.cox@assetpoint.com.