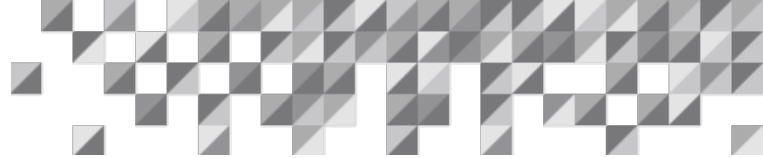# Effectively Manage Contractor Safety using Process Safety Enterprise®

An ioMosaic White Paper

Date: July 1, 2024

Overview

Process Safety Enterprise® (PSE), a cloud-based platform, helps manage contractor safety, ensuring compliance with OSHA's PSM standard. This white paper details the key features of PSE, including:

- Document Control System: Easily stores and retrieves documents.
- Intelligent Form Builder: Creates customizable forms.
- Action Tracking System: Manages all tasks related to managing contractors.
- Reporting and Dashboard/KPI: Provides real-time insights into activities.
- Contractor Safety Workflow: Guides users through contractor tasks, such as approving new contractors, training, tracking assigned and approved job tasks, learning about any hazards they may introduce to the site, and evaluating them onsite.

A case study highlights the consequences of inadequate contractor management. It emphasizes how a process to ensure consistent contractor management could have helped to prevent this disaster.

Introduction

Contractor safety management is vital to OSHA's PSM 29 CFR 1910.119 standard. It ensures that contractors are preapproved and aware of the required site information, such as hazards and emergency response. It also ensures the work is managed and contractors are routinely evaluated onsite.

Businesses often encounter challenges overseeing these activities since new contractor companies and individuals constantly come onsite. All contractors must also be trained, directed, and evaluated. Managing contractors is essential to ensure they do not cause a catastrophic event or fail to respond properly to one. Overlooking these activities risks the safety of employees, plant assets, the community, and the environment. Production could also be interrupted if an accident occurs.

An effective contractor safety management process should include the activities above and track them to completion. Training should also be tracked for the contractors to ensure they are qualified to work on the site. To help you better understand the requirements of the PSM standard, we recommend a PSM Essentials eLearning course like the one offered by Process Safety Learning®.
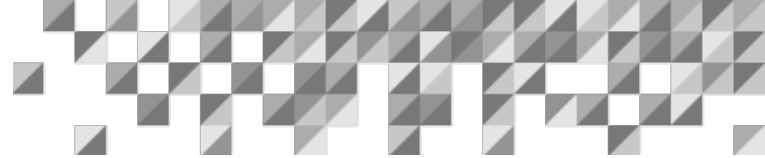
A document management system is needed to store and access the required procedures, PSI, safe work permits, maintenance records, and Safety Data Sheets (SDSs). An effective contractor safety management process tied to related PSM elements can help companies document, plan, execute, and store required procedures, reports, and permits. The workflows can help companies comply with the PSM requirements of the 29 CFR 1910.119 standard.

For businesses serious about implementing a comprehensive PSM compliance system, ioMosaic offers the Process Safety Enterprise® (PSE) (Figure 1). PSE is a cloud-based platform enabling easy ongoing management of process safety data, helping businesses achieve compliance, manage risk, and remain competitive. Unlike any other system available today, PSE is a centralized cloud-based application that integrates all PSM elements and workflows, making it THE ultimate solution for managing contractors effectively. This white paper will delve into the key features of the Contractor Safety workflow and how it benefits companies seeking to improve and elevate their systems while complying with PSM.

Figure 1. Process Safety Enterprise® (PSE)
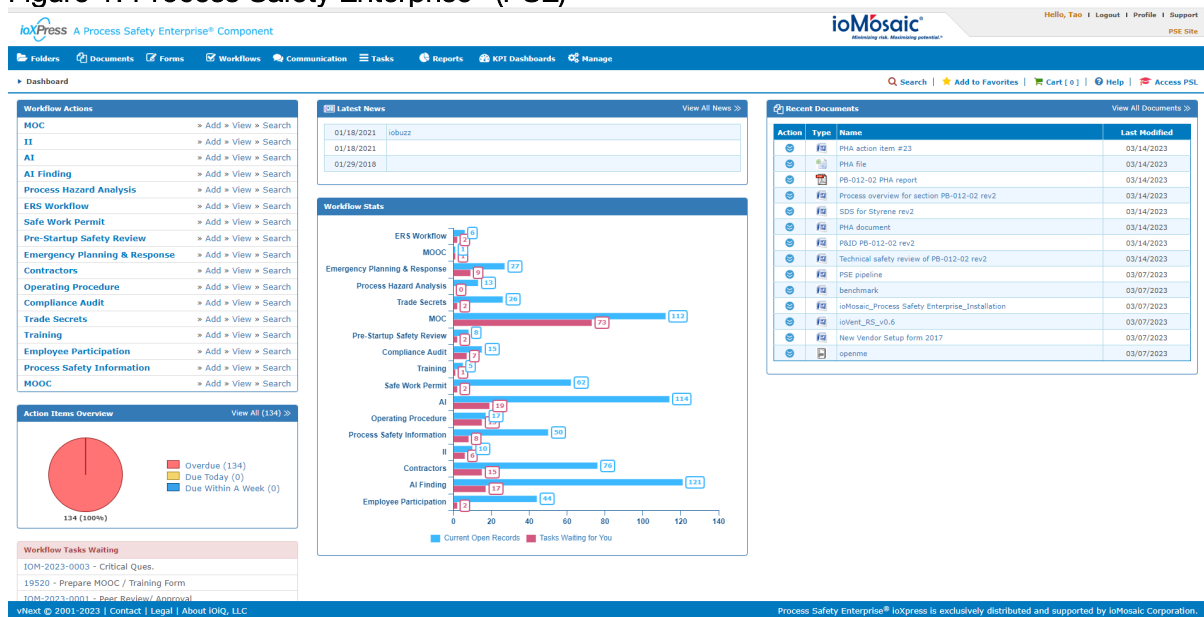
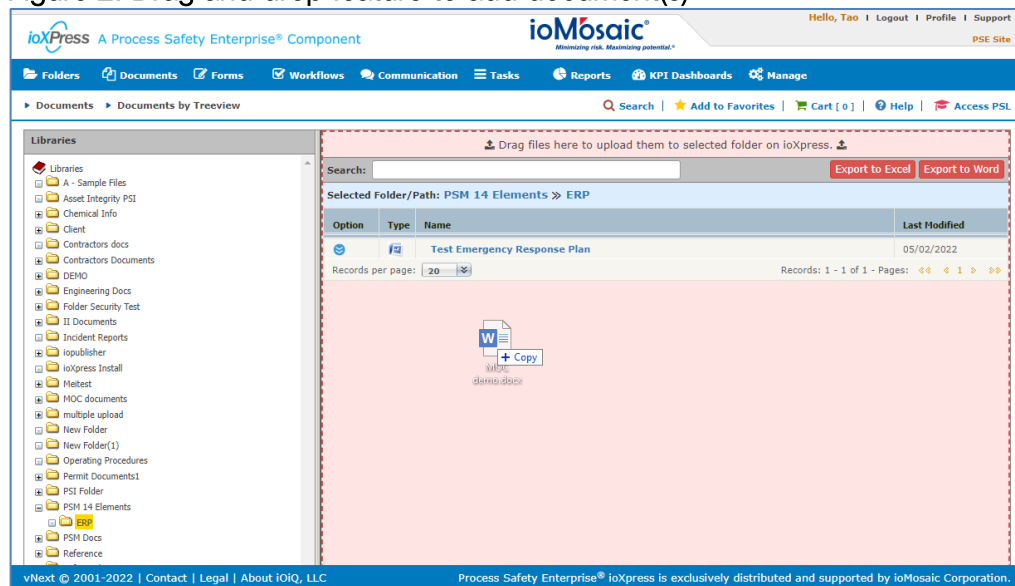Source: ioMosaic Corporation – PSE

Document Control System

The document control system of PSE's platform is a key component for facilitating easy access to all critical process safety data. It allows users to easily access and add documents using a drag-and-drop (Figure 2) feature. This action quickly organizes documents in folders for easy retrieval. Its advanced search function indexes all documents with full text, allowing users to find necessary
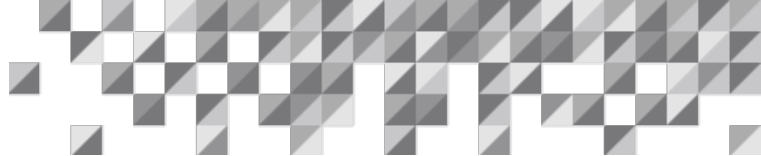
information quickly. An embedded document viewer feature not only enhances accessibility but also bolsters security measures. By granting users view-only permission, they can view documents as images, preventing unauthorized downloads and eliminating the need to log into their computers for access. This document control component is an effective tool for managing various types of data, including but not limited to completed safe work permits, Process Safety Information (PSI), procedures, and reports. This component further ensures that all stakeholders have easy access to vital information related to contractor work stored in a centralized location.

Figure 2. Drag and drop feature to add document(s)

Source: ioMosaic Corporation – PSE

Intelligent Form Builder

PSE also includes an intelligent form builder for efficient data capture and linking to documents in a central digital library. This dynamic form builder enables users to create practical, customizable forms for the contractor workflow.

The ability to customize forms for unique contractor practices ensures that all necessary data is captured accurately and consistently. Moreover, this feature allows easy data export to an Excel format, making data analysis and sharing even more seamless. Implementing a customizable form builder like the one in PSE streamlines your process by capturing data accurately and efficiently.

Figure 3 shows a Contractor workflow form for approving new contractors. This form can be customized for company-specific requirements.
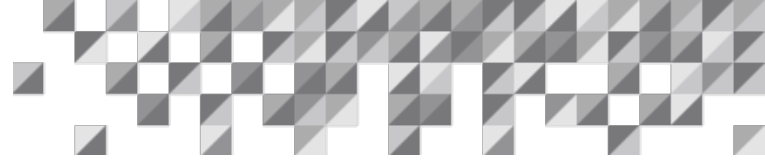
Figure 3. Example of the contractor approval form within the Contractor workflow

Source: ioMosaic Corporation – PSE

Contractor Safety Performance Evaluation

*Contractor's OSHA 300 Log Summary ⊞ OSHA 300 Log Summary 🔍

OSHA 300 Log [_____] Add 🏠 🔍 ⊕

Experience Modification Rating (EMR)   *Past Year EMR * [Text Input]   *2 Year EMR * [Text Input]   *3 Year EMR * [Text Input]

*Has the company had work related deaths in the last 5 years * ○ Yes   ○ No

*Has the company been cited by OSHA in the last 5 years * ○ Yes   ○ No

Contractor Programs and Safe Work Practices Evaluation

Does the company have written programs for the following:

*LOTO Program Meeting the Requirements of 29 CFR 1910.147 * ○ Yes   ○ No

*Hot Work Program Meeting the Requirements of 29 CFR 1910.252(a) * ○ Yes   ○ No

*Confined Space Entry Program Meeting the Requirements of 29 CFR 1910.146 * ○ Yes   ○ No

*Safety Program Meeting the Requirements of 29 CFR 1926.21 or 1910.12 * ○ Yes   ○ No

*HAZCOM Program Meeting the Requirements of 29 CFR 1910.1200 * ○ Yes   ○ No

*HAZWOPER Program Meeting the Requirements of 29 CFR 1910.120 * ○ Yes   ○ No   ○ Not Applicable

Contractor Training Records Evaluation

*Contract Employee Certifications and Training Records	Employee Name	Type of Training	Certifications and Training Records
Add New Row			

*Date * 📅 [_____] ▼

Contractor Approval

*Action * ○ Accept   ○ Reject   ○ Additional Information Required

Comments * [_____]

Source: ioMosaic Corporation – PSE

Contractor Workflow

PSE is the only process safety platform that integrates all of OSHA's Process Safety Management (PSM) elements using visual workflows in a single enterprise system. This workflow includes PSM's 14 elements using workflows, action tracking modules, and document control. The Training workflow can be used to require and track training for the contractors. The Contractor Safety workflow provides templates for typical high-risk activities contractors do. PSE workflows allow companies to create and manage contractors and safe work permits while documenting the required permits, PSI, and other required information.

The Contractor Safety workflow establishes steps for initially approving, removing, training, and evaluating contractors. It also has a step for approving work assignments for qualified contractors
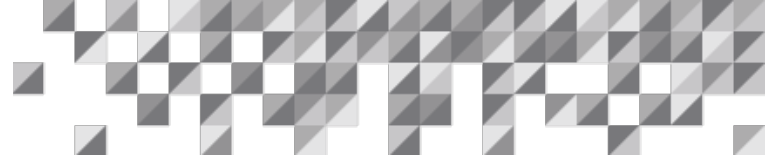
and ensures that all job hazards have been evaluated and discussed with the contractor before work begins.

Figure 4 illustrates the Contractor Safety workflow steps, with blue Complete, gray Not applicable, and green Ready steps. The workflow can only be closed once all required steps are completed.

This PSE workflow within PSE ensures contractors are approved, trained, and managed per the OSHA standards and guidelines.

Figure 4: Example of Contractor Safety Workflow
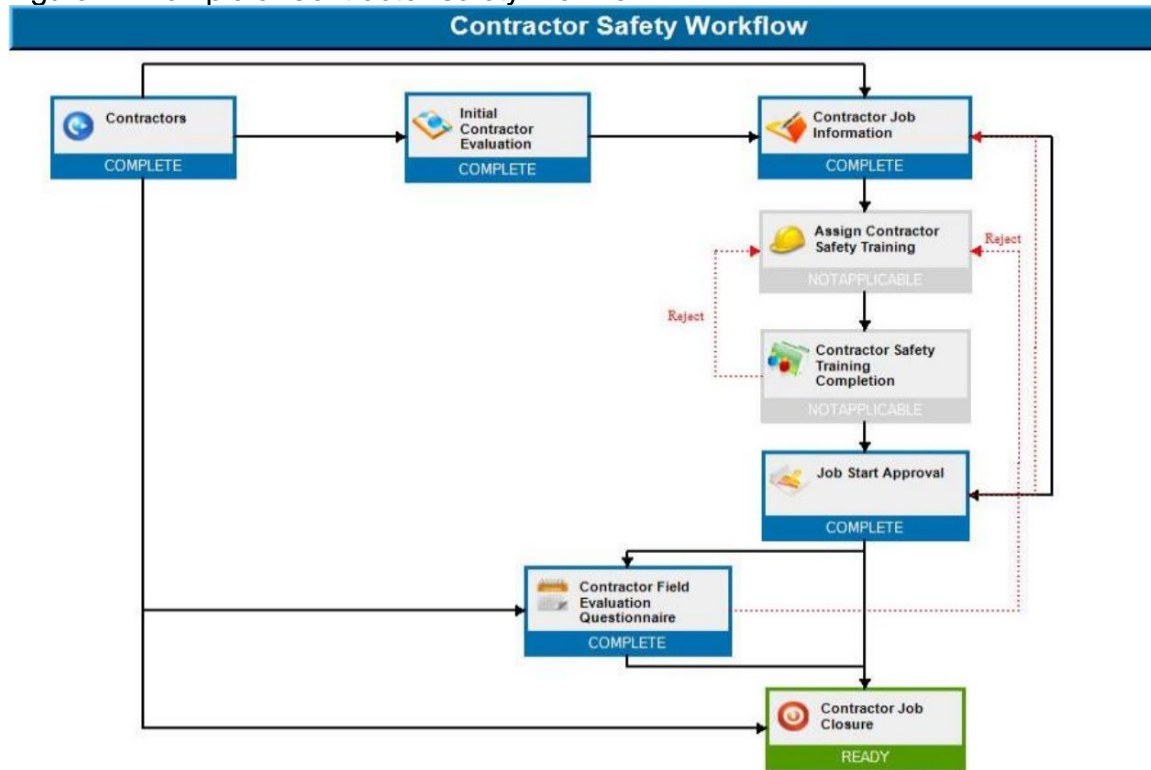
Source: ioMosaic Corporation – PSE

Action Tracking System

PSE features a comprehensive action item management system (Figure 5). It tracks all tasks related to each process safety management workflow, such as Contractor Safety. This feature ensures that all action items are managed within the platform, reducing or eliminating the risk of overlooked or forgotten tasks. Additionally, the automatic reminders ensure that all tasks are completed on time.
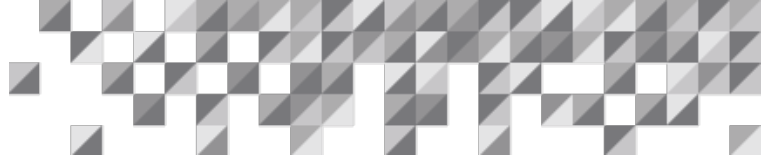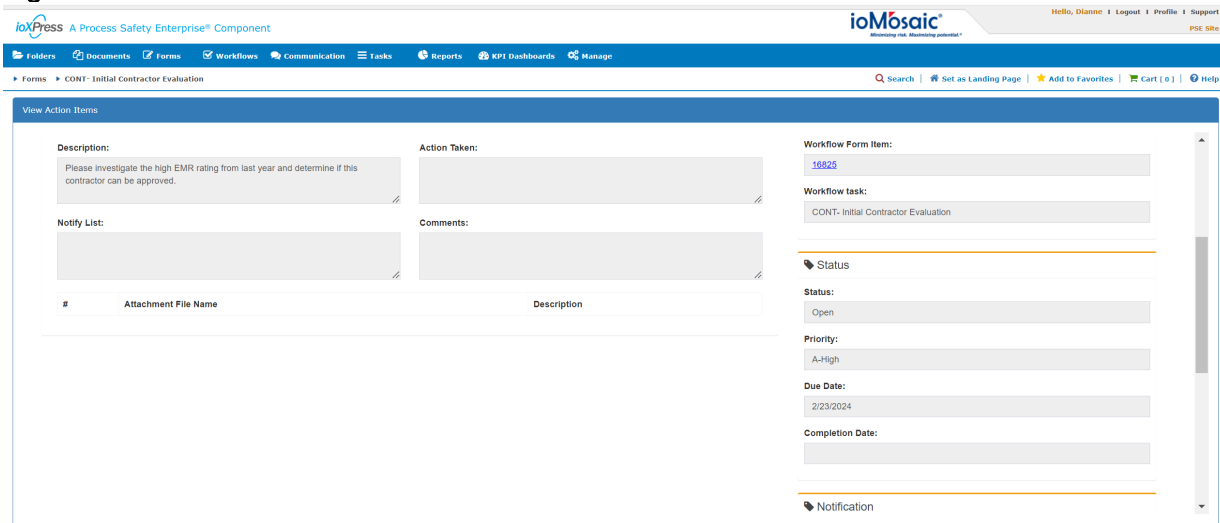
Figure 5. Initial Contractor Evaluation Action Item

Source: ioMosaic Corporation – PSE

Reporting and Dashboard/KPI

An effective dashboard (Figure 6) is an invaluable 'must-have' asset for any data-driven enterprise looking to increase performance and productivity. Well-designed dashboards featuring various widgets such as bar charts, pie charts, line charts, and tables provide a comprehensive overview of the PSM program from a single source. These dashboards allow business owners to make quick, informed decisions based on real-time data.

Moreover, the reporting and dashboard capabilities provide real-time visibility into contractor activities, allowing organizations to identify trends and areas of concern quickly. This capability enables the timely resolution of recommendations, reducing the risk of viable scenarios and potential incidents. PSE's robust reporting and dashboard/KPIs are essential tools for optimizing operations and mitigating potential risks.
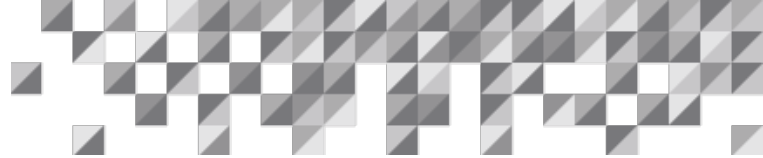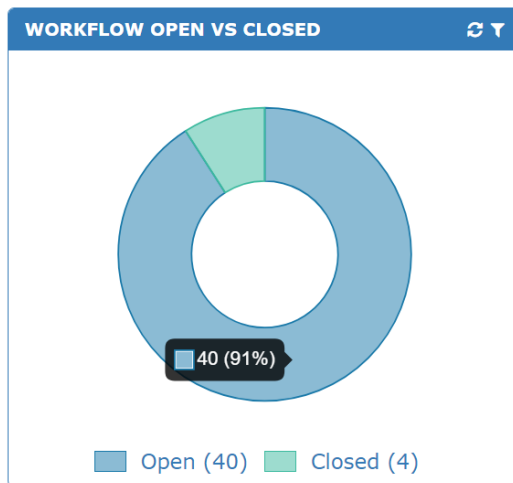
Figure 6. Dashboard/KPI

Source: ioMosaic Corporation – PSE

Case Study – The Consequences of Not Identifying and Managing Process Hazards When Employing Contractors

The Challenge

The US Chemical Safety and Hazard Investigation Board (USB) investigated the Valero Delaware City Refinery after the asphyxiation of two Matrix contractors hired to replace piping on a pressure vessel with an ongoing nitrogen purge. The work permit was supposed to be for set-up only, but the permit did not state this. It also did not warn about the nitrogen purge hazard. The contractors removed the covering over the missing reactor manway, which was not an activity that was supposed to be part of the permit. After removing the covering, they noticed that a roll of tape had fallen onto the distribution tray inside the reactor. The contractors knew that entering the reactor would require a confined space entry, so they attempted to grab the tape with a long wire hook. During this attempt, the first worker somehow fell into the reactor and became unresponsive. The foreman grabbed a ladder and immediately entered the reactor to assist the first worker. The foreman also became unresponsive. Emergency response specialists were called and immediately tested the air, which had virtually no oxygen. Due to the tight space and the time it took to extract them, the two individuals were without oxygen for about ten minutes and were pronounced dead at the hospital.

The CSB found that this incident occurred due to a breakdown in communication between the company, Valero, and the contracted company, Matrix. The area where the manway opening was
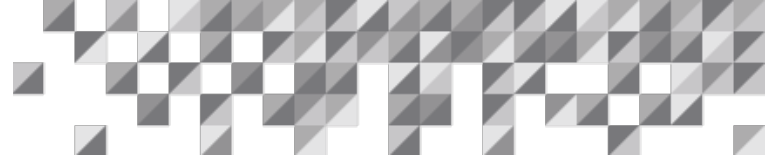
covered and protected warned about a confined space entry. Still, the required placard for a nitrogen purge in progress that could create an oxygen-deficient atmosphere was not. A required mutual visit to the job site to discuss potential hazards was not done. This visit might have prompted the discovery that the nitrogen purge hazard was not noted on the permit, nor was the requirement to have fresh air supplied while working there. They may also have found that the permit did not state set-up only.

The CSB also found that the confined space entry training did not mention that an oxygen-deficient atmosphere could be present outside the confined space during a nitrogen purge. This hazard was not commonly recognized in the industry at the time of the accident. The foreman who immediately entered the confined space should have followed the safe rescue procedures, including air monitoring. The final CSB report can be found at this link.

This disaster could have been prevented if the company had adequate systems to communicate effectively with its contractors, properly execute safe work permits, and ensure contractor training addressed the site's known hazards.

Creating a documented program that relies on an electronic platform for contractor safety and safe work permit workflows that ensure site hazards are addressed and managed before work begins, contractors are properly trained on known site hazards, and all permit steps are properly executed can help prevent similar incidents.

Our Approach

Process Safety Enterprise® Contractor Safety Workflow is a cloud-based platform that provides a centralized database accessible and visible to all employees and contains a step-by-step guided workflow. This workflow could have minimized or eliminated the Delaware City incident referenced in the case study. Additionally, PSE can integrate multiple sites and various data into one uniform system (which would have further minimized the incident) by:

- Developing a unique ID system to differentiate facilities and areas
- Setting up sign-on access for users at all facility sites
- Identifying and developing consistent data definitions and Key Performance Indicators (KPIs)
- Standardizing search queries to ensure data quality
- Devising site-specific and corporate reporting capabilities
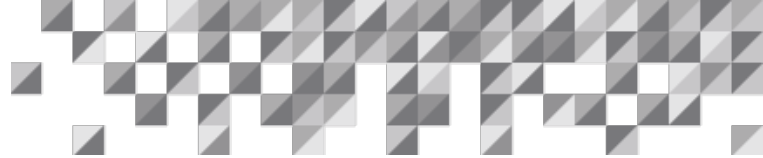
Customizable workflows are available within PSE and can assist with creating unique contractor safety forms.

PSE's built-in features, such as the automatic assignment of approvals, action item tracking, document linking, and email notifications, all contribute to the automatic assignment of approvals, action item tracking, document linking, and email notifications; all contribute to ensuring the safe management of contractors is properly executed and visible to employees.

The Benefits

For companies serious about their process safety compliance and contractor management systems, PSE is a user-friendly workflow with document control that is scalable and affordable.

The Contractor Safety workflow streamlines initially approving, removing, training, managing, and evaluating contractors. It also has a step for approving work assignments for qualified contractors and ensures that all job hazards have been evaluated and discussed with the contractor before work begins. The safe work permit and training workflows can be used with the Contractor Safety workflow.

Finally, the PSE workflows have KPIs that track open workflows and the percentage of overdue workflows. The KPIs are graphed with interactive data that allows the user to drill down to the specific data. Reports can also be generated to view a contractor's history and past performance.

Conclusion

Managing contractor safety can be challenging; fortunately, Process Safety Enterprise® (PSE) provides an integrated solution that makes the process more efficient and effective. With its dynamic form builder, action tracking feature, and integrated workflow to standardize the process, companies reduce the risk of incidents and non-compliance.

PSE offers additional benefits, including enhanced collaboration, improved data management, and increased compliance with process safety regulations. With the reporting and dashboard capabilities, organizations can easily identify trends and potential areas of concern, gaining real-time visibility into all process safety-related activities. The automatic notification system sends reminders and alerts to stakeholders, ensuring items are addressed in a timely manner.

PSE's customizable Contractor Safety workflow module provides an efficient process for managing contractors while capturing all necessary information in one centrally located platform.
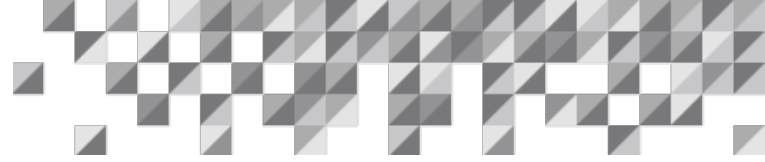
PSE is the only product of its kind in the market today that provides an all-inclusive process safety compliance platform that makes compliance easy.
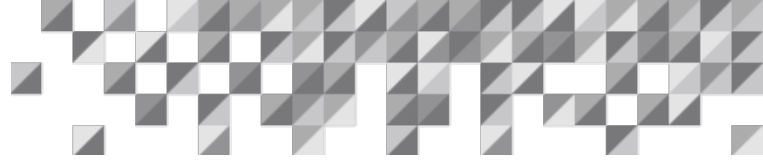
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Useful Links

PSE link to software demo requests

PSE link to PSE overview
PSM Essentials Training link
CSB report link
Additional PSE White Papers:

    PSM Compliance Made Easy with Process Safety Enterprise®

    Effectively Manage Mechanical Integrity with PSE

    Effectively Manage Processes Chemicals Equipment and Personnel with PSE

    Process Safety Enterprise® Asset Integrity Management Service (AIMS) and KPI Dashboard