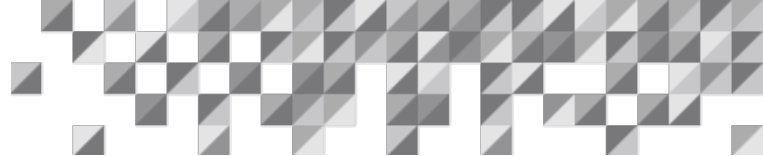


Effectively Manage Emergency Planning and Response using Process Safety Enterprise[®]

An ioMosaic White Paper

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Overview

Process Safety Enterprise® (PSE), a cloud-based platform, helps Emergency Planning and Response (EPR), 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 EPR
- Reporting and Dashboard/KPI: Provides real-time insights into activities
- EPR Workflow: Guides users through

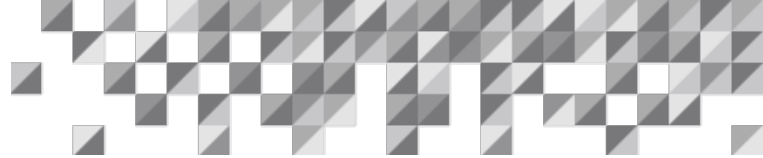
A case study highlights how PSE and an effective EPR process could have helped to prevent this disaster by preparing for and managing emergency response effectively.

Introduction

Emergency planning and response is crucial to the Occupational Health and Safety Administration (OSHA) Process Safety Management (PSM) 29 CFR 1910.119 standard. Emergency plans identify viable scenarios and determine appropriate responses for mitigating and managing the associated hazards and protecting people, assets, and the environment.

Businesses often encounter challenges in overseeing this requirement, as it involves the intricacies of developing and implementing the emergency action plan and potentially an emergency response plan if the site chooses to have employees actively respond. The process includes large amounts of Process Safety Information (PSI), approvals, notifications, drills, and the completion of action items to address recommendations from drills or emergencies - all of which demand considerable time and resources. Overlooking these responsibilities risks the safety of employees, plant assets, the community, and the environment.

An effective emergency planning and response program should include tracking relevant activities, such as drills, coordination, notification, tabletop exercises with local authorities, and emergency alarm testing/sounding. The emergency action and response plans should also be updated as changes occur or lessons are learned from the drills and other exercises. Training should be tracked for all employees for awareness of the emergency action plan including specific alarms, actions to be taken, safe exit paths, shelter-in-place areas, and designated meeting points. If the site responds to emergencies, the training for responders will be more intensive. A document



management system is needed to create and store the original and updated emergency action and response plans and associated procedures.

Effective emergency response and planning systems help companies plan, approve, execute, and document the required activities. This workflow 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 in the market today, PSE is a centralized web-based application that integrates all PSM elements and workflows, making it THE ultimate solution for managing emergency planning and response effectively. This white paper delves into the key features of the Emergency Planning and Response workflow and how it benefits companies seeking to improve and elevate their systems for planning, responding to, and mitigating catastrophic events.

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®](#).

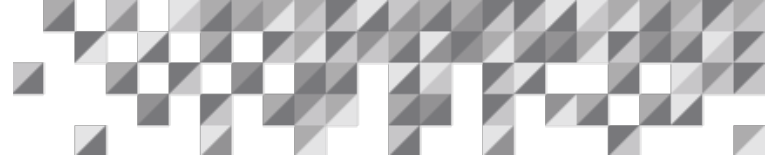
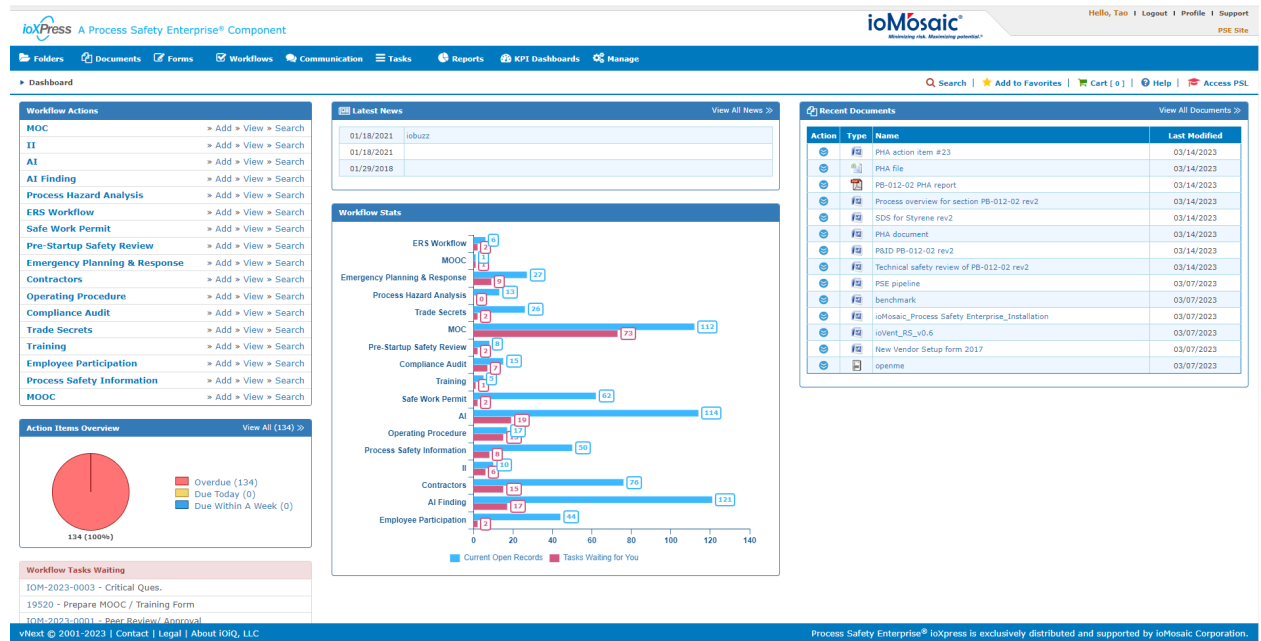


Figure 1. Process Safety Enterprise® (PSE)



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 simple drag-and-drop (Figure 2) feature. This action quickly organizes documents into 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 permissions, 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 PSE data, including but not limited to completed emergency action and response plans, engineering data, process safety information (PSI), emergency exercise forms, procedures, records, pictures, videos, animation, and reports. This component further ensures that all stakeholders have easy access to vital information about emergency planning and response stored in a centralized location.

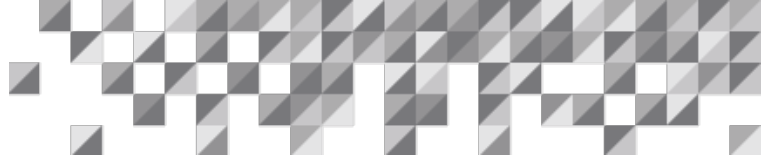
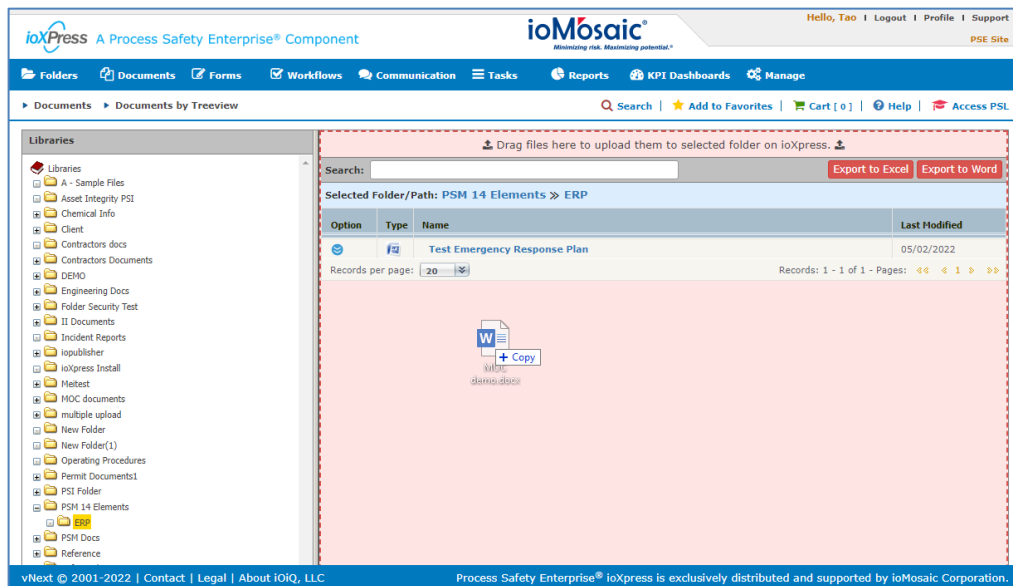


Figure 2. Drag and drop feature to add document(s)



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 to determine the site's applicability to various EPR standards and track required activities such as training, notifications, and drills.

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

Figure 3 shows an example of an EPR form.



Figure 3. Example of EPR Form for Specifying the Workflow

Save Draft
↩ Back to Workflow

You are working on EPR - Assign Task form of workflow Emergency Planning & Response # 17451 - Test Tabletop by Ousama

Assign ER&P Task
Data History
Workflow Note

Facility/Area	APCS
EAP Version Number	VER_MOG
*Choose Task *	<div style="border: 1px solid #ccc; padding: 2px;"> Emergency Response Tabletop Exercise </div>
*Task Responsible Person *	<div style="border: 1px solid #ccc; padding: 2px;"> Review and Update of Plan Coordination of Emergency Response Exercise - Notification of Emergency Emergency Response Field Exercise Emergency Response Tabletop Exercise ERP Training Emergency Alarm Inspection/Testing </div>
*Due Date *	
Personnel Requiring Training	
*Detailed Description of Task *	<div style="border: 1px solid #ccc; padding: 5px; min-height: 40px;"> Test Tabletop by Ousama Task Desc </div>
Submitted By	<div style="border: 1px solid #ccc; padding: 2px;"> Ousama Ghazali </div>
Password	<div style="border: 1px solid #ccc; padding: 2px;"> Password </div>
Date	<div style="border: 1px solid #ccc; padding: 2px;"> 8/16/2022 </div>

Save Draft
↩ Back to Workflow

Source: ioMosaic Corporation – PSE

Emergency Planning and Response (EPR) Workflow

PSE is the only process safety platform integrating all of OSHA's Process Safety Management (PSM) elements using visual workflows. This single enterprise platform includes workflows for PSM's 14 elements, action tracking modules, and document control. The Training workflow can be used to require and track training for EPR awareness and responder safety training. The EPR forms and workflows allow you to determine which activities are required and then initiate a workflow for each activity to document the execution, approval process, and action item completion.

The EPR workflow establishes steps for initiating a particular task, documents the activities within that task, records required approvals, and ensures that all action items are completed before closing the workflow. This workflow (and all PSE workflows) is easily customized to meet the specific needs of any company.

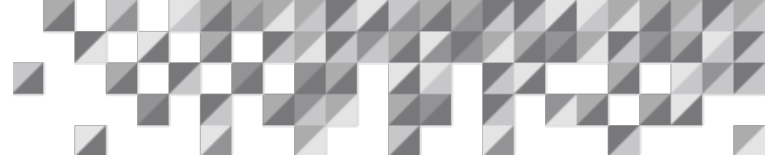
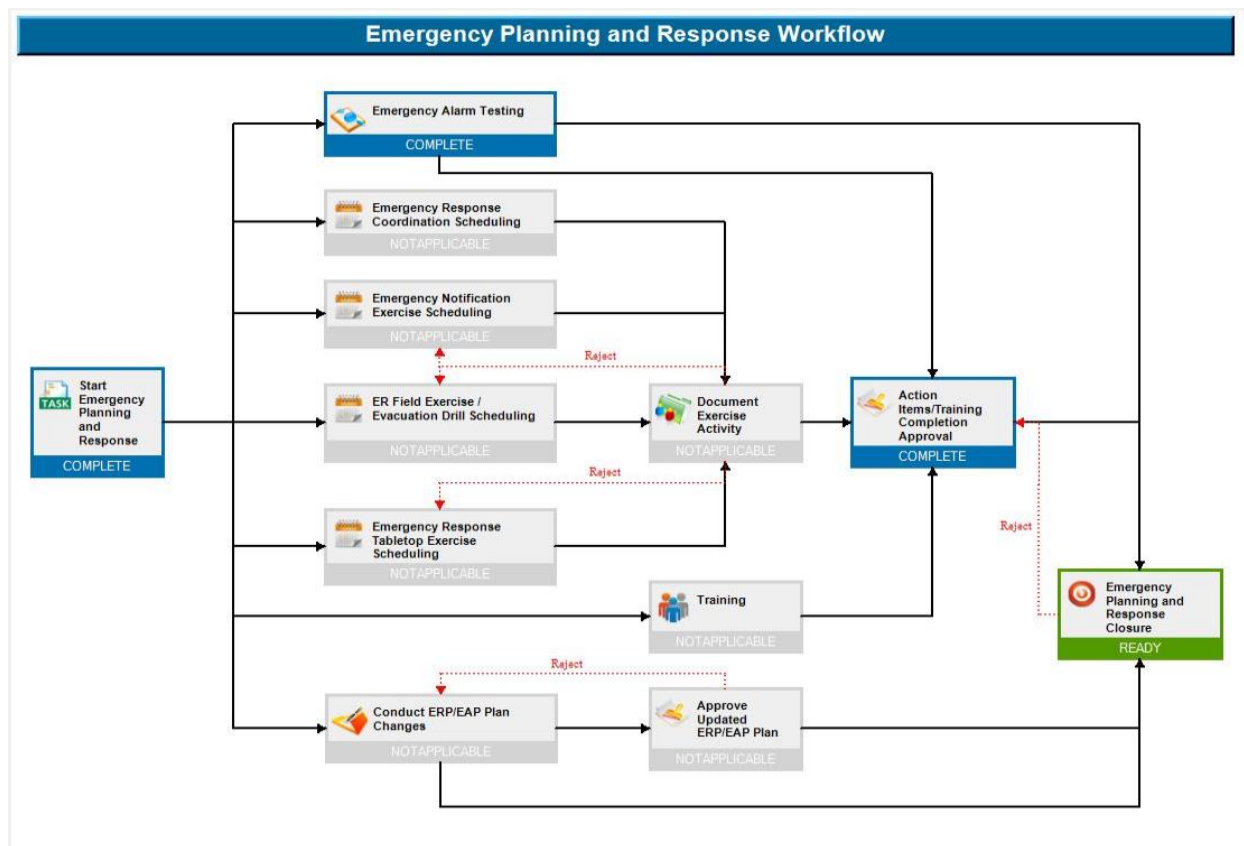


Figure 4 illustrates the ERP workflow steps. Completed steps are in blue, Inactive steps in light gray, Not applicable steps in dark gray, and Ready steps are in green. The workflow can only be closed once all required steps are completed.

The EPR workflow within PSE ensures that emergency action plans are created and kept up-to-date and that required activities, such as notifications and sounding of alarms, are completed per the OSHA standards and guidelines.

Figure 4: Example of Emergency Planning and Response Workflow



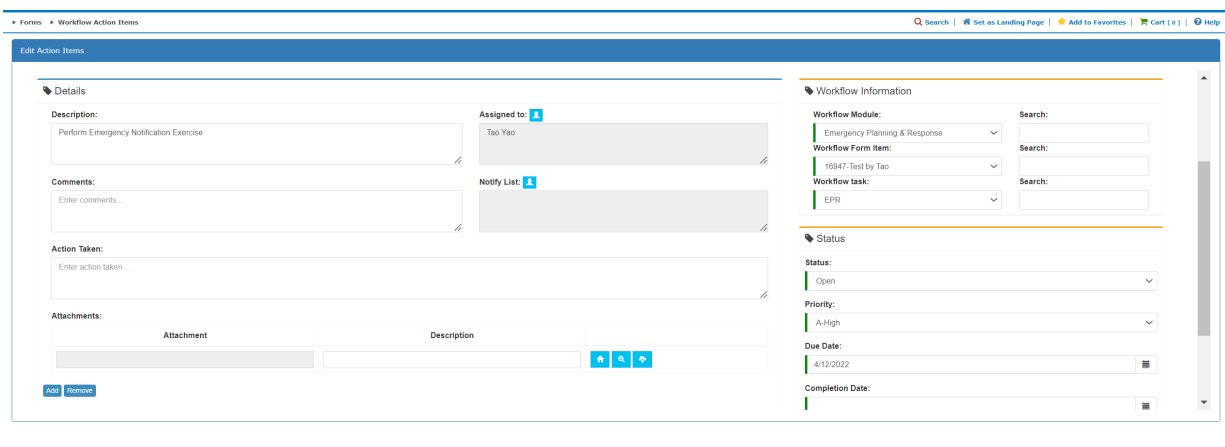
Source: ioMosaic Corporation – PSE

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 Emergency Planning and Response. This feature ensures that all action items are managed within the platform, reducing or eliminating the risk of overlooked or forgotten tasks. An additional feature, the 'Automatic Reminders,' enforces all tasks to be completed on time.



Figure 5. Emergency Planning and Response 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 at a glance based on real-time data.

Moreover, the reporting and dashboard capabilities provide real-time visibility into EPR activities, allowing organizations to identify trends and areas of concern quickly. This capability enables timely corrective action, reducing the risk of non-compliance. PSE's robust reporting and dashboard/KPIs are essential tools for optimizing operations and mitigating potential risks.

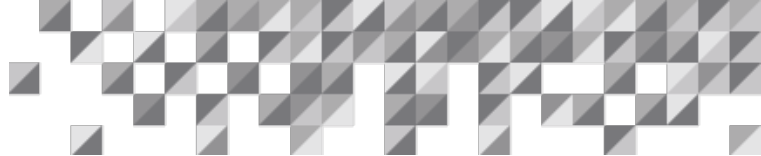
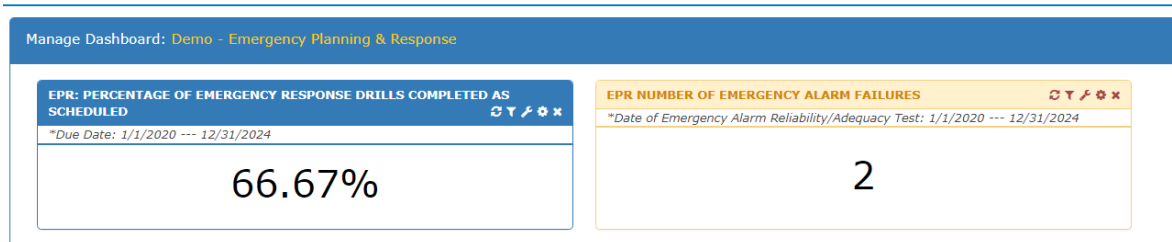


Figure 6. Dashboard/KPI



Source: ioMosaic Corporation – PSE

Case Study – The Consequences of Ineffective EPR

The Challenge

The US Chemical Safety and Hazard Investigation Board (CSB) investigated a fire and explosion that occurred on April 2, 2019, at 10:51 am at the Crosby, Texas, facility belonging to KMCO LLC. A flammable isobutylene vapor cloud exploded, fatally injuring one KMCO employee and seriously injuring two others. At least 28 other workers were injured, including five KMCO employees and 23 contract workers. Local authorities quickly issued a shelter-in-place order to residents within a 1-mile radius that was lifted over four hours later.

The CSB investigation found that KMCO never activated its facility alarm system to notify all workers about the isobutylene release emergency. They only used the radio to notify people, but not everyone had one. As a result, some injured workers were nearer to the explosion than they should have been. KMCO could have reduced the event's severity by using its facility alarm system to notify all workers of the isobutylene release emergency and communicate the evacuation order.

The CSB also found that KMCO did not establish procedures or provide training that effectively distinguished the incidents its operators could respond to versus the emergency events that the site's emergency response team must respond to. The KMCO operations staff would quickly stop the isobutylene for routine small leaks. When the isobutylene release began, workers in a safe location moved toward the isobutylene vapor cloud, which put them in harm's way. KMCO could have reduced the event's severity by establishing clear policies and training its workforce to respond to a chemical release without putting themselves in harm's way. Please see this [link](#) for the details of this incident.

More thorough emergency action and response plans that were routinely practiced, including sounding the evacuation alarm and practicing a quick evacuation, could have helped reduce the severity of this accident. However, an existing program solely relying on individuals to execute the



EPR requirements and maintain the documentation can be prone to human error. Creating a documented program that relies on an electronic platform for creating, maintaining, and tracking practice exercises for the emergency action and response plans can ensure key requirements are met and everyone understands their role during an emergency. An electronic program can also help reduce the risk of worker fatalities and injuries by helping companies prepare to execute their comprehensive emergency action and response plans.

Our Approach

Process Safety Enterprise® Emergency Planning and Response 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 helped reduce the severity of the Crosby 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

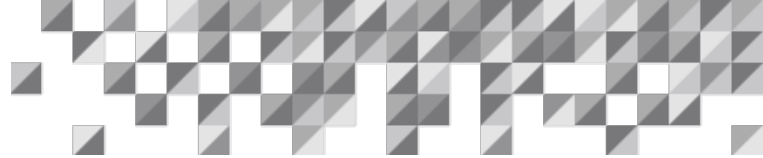
Customizable workflows are available within PSE and can assist with creating, maintaining, and practicing comprehensive emergency action and response plans.

PSE's built-in features, such as the automatic assignment of approvals, action item tracking, document linking, and email notifications, all contribute to ensuring the documentation and execution of ERP activities are properly captured, accessible, and visible to employees.

The Benefits

For companies serious about their process safety compliance and the ERP process, PSE is a user-friendly platform with workflows for document control that is scalable and affordable.

Managing emergency planning and response is simplified and ensures that comprehensive emergency action and response plans are in place, updated, and practiced to ensure the workforce is trained and prepared to react appropriately during an emergency.



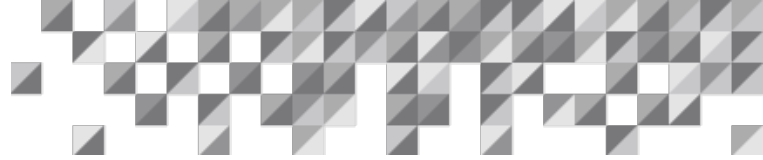
Finally, the PSE workflows have KPIs that track open workflows and the percentage of extended or renewed workflows. The KPIs are graphed with interactive data, allowing you to drill down to the specific data. Reports can also be generated to view the EPR activity completion and due dates.

Conclusion

Managing Emergency Response and planning effectively and consistently 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 workflows to standardize the process, companies can prepare for and reduce the severity of incidents.

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, ensuring items are addressed timely.

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](#)