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Effectively Manage Compliance Audits using Process Safety Enterprise®

An ioMosaic White Paper

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Overview

Process Safety Enterprise® (PSE), a cloud-based platform, helps manage compliance audits, ensuring compliance with OSHA's PSM standard. This 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 compliance audits
- Reporting and Dashboard/KPI: Provides real-time insights into activities
- Compliance Audit Workflow: Guides users through internal and regulatory audit initiation, approvals, preparation, execution, quality checks, and recommendation generation and completion.

A case study highlights how PSE and an effective compliance audit process could have helped to prevent this disaster by finding and correcting potential issues before incidents occurred.

Introduction

Compliance audits are essential for effectively executing the Occupational Health and Safety Administration (OSHA) Process Safety Management (PSM) 29 CFR 1910.119 standard. The standard requires compliance audits in section "o." Compliance audits are also required by 40 CFR 68, chemical Accident Prevention Provisions, often called RMP due to the required Risk Management Plan within this standard.

Businesses often encounter challenges in creating an effective compliance audit process, as it involves the intricacies of forming qualified teams, effectively auditing the entire PSM/RMP program, and ensuring that all recommendations are resolved or implemented in a timely manner. Overlooking these responsibilities could result in continued PSM program gaps that risk the safety of employees, plant assets, the community, and the environment.

An effective compliance audit process should ensure the three-year, formal audit is conducted for the entire PSM/RMP program as required. Preferably before the audit, the audit team should have access to the PSM procedures, the two prior PSM audits, a process overview, an applicability statement, the last Process Hazard Analysis (PHA), and a critical equipment list, if one exists. The site RMP and applicability statement should also be made available if applicable. It should also identify and document qualified people for informal and formal regulatory PSM/RMP audits.

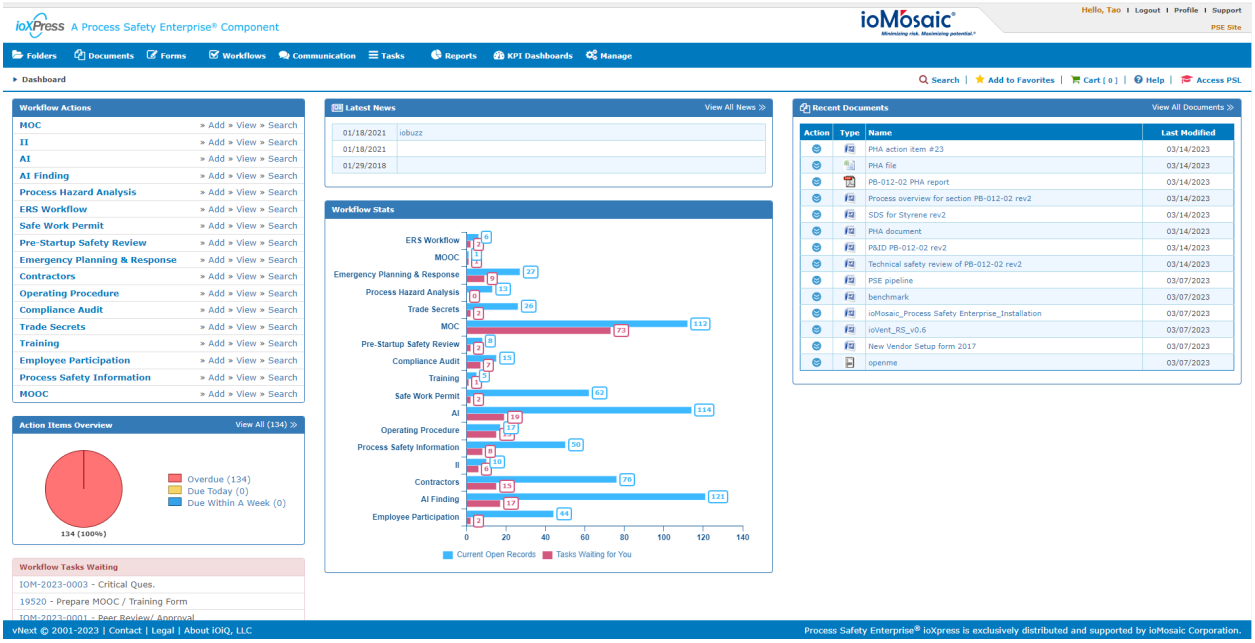
Recommendations should be documented and whether they are resolved or implemented. All approved recommendations should be implemented on time and tracked to completion.

Effective compliance audit processes help companies document, plan, execute, and store required audit documentation. 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 compliance audits effectively. This white paper delves into the key features of the Compliance Audit workflow and how it benefits companies seeking to improve and elevate their systems to monitor and improve their PSM program.

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)

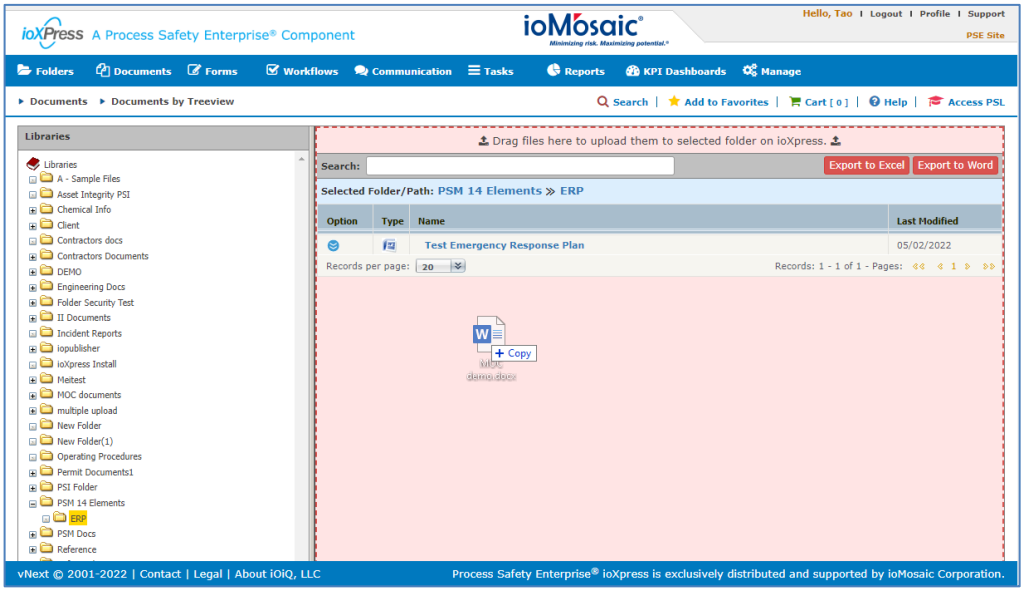


Source: ioMosaic Corporation – PSE

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 data, including but not limited to completed compliance audits, recommendation tracking, engineering data, process safety information (PSI), procedures, records, pictures, videos, animation, and reports. This component further ensures that all stakeholders have easy access to vital information related to compliance audits stored in a centralized location.

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



Source: ioMosaic Corporation – PSE

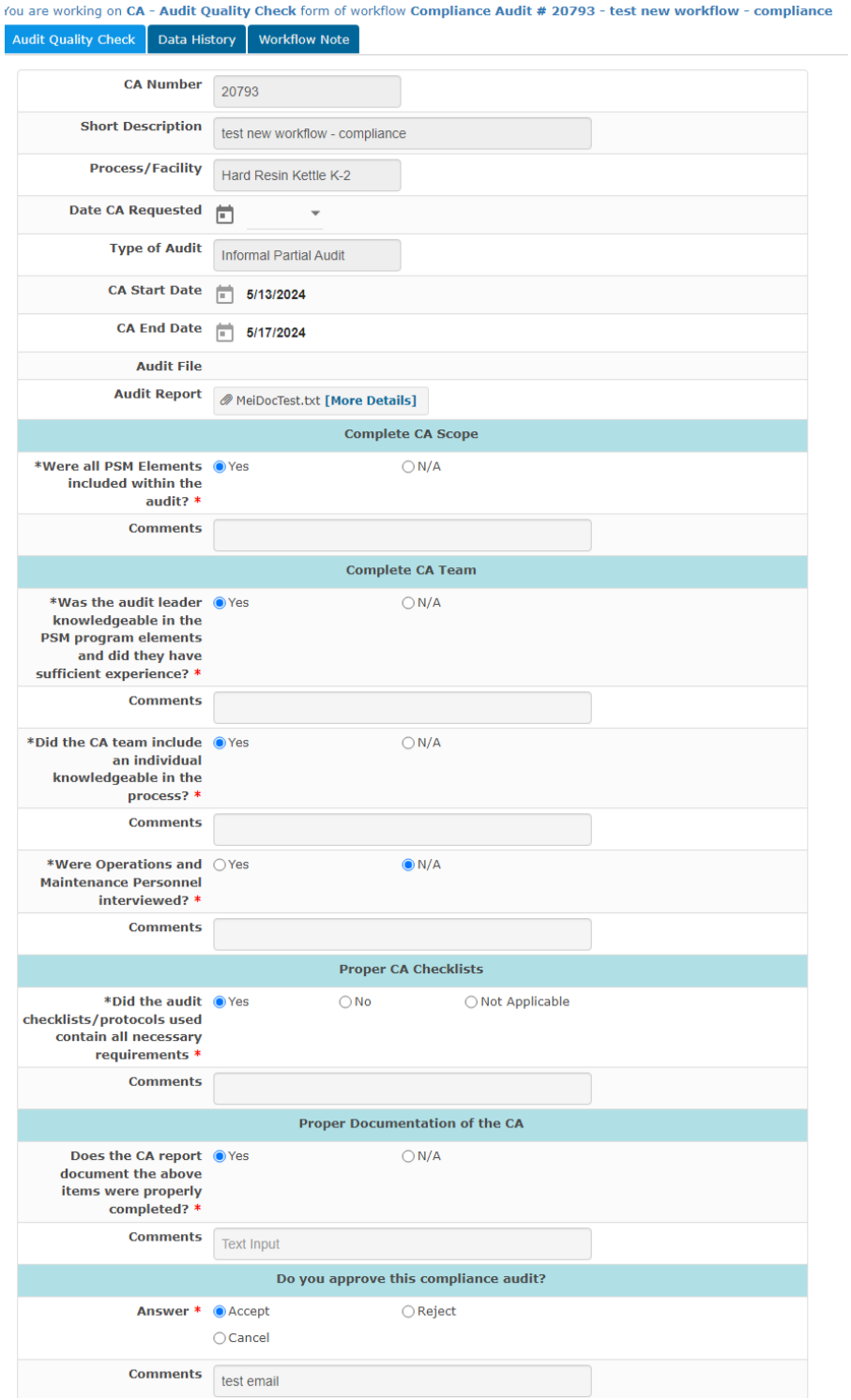
Intelligent Form Builder

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 audit forms.

The ability to customize unique compliance audit forms 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 the compliance audit process by capturing data accurately and efficiently.

Figure 3 shows an example of a compliance audit form.

Figure 3. Example of Audit Quality Check and Approval Form



You are working on **CA - Audit Quality Check** form of workflow **Compliance Audit # 20793 - test new workflow - compliance**

Audit Quality Check | Data History | Workflow Note

CA Number	20793
Short Description	test new workflow - compliance
Process/Facility	Hard Resin Kettle K-2
Date CA Requested	
Type of Audit	Informal Partial Audit
CA Start Date	5/13/2024
CA End Date	5/17/2024
Audit File	
Audit Report	MeiDocTest.txt [More Details]

Complete CA Scope

*Were all PSM Elements included within the audit? *	(•) Yes ( ) N/A
Comments	

Complete CA Team

*Was the audit leader knowledgeable in the PSM program elements and did they have sufficient experience? *	(•) Yes ( ) N/A
Comments	
*Did the CA team include an individual knowledgeable in the process? *	(•) Yes ( ) N/A
Comments	
*Were Operations and Maintenance Personnel interviewed? *	( ) Yes (•) N/A
Comments	

Proper CA Checklists

*Did the audit checklists/protocols used contain all necessary requirements *	(•) Yes ( ) No ( ) Not Applicable
Comments	

Proper Documentation of the CA

Does the CA report document the above items were properly completed? *	(•) Yes ( ) N/A
Comments	Text Input

Do you approve this compliance audit?

Answer *	(•) Accept ( ) Reject ( ) Cancel
Comments	test email

Source: ioMosaic Corporation – PSE

Compliance Audit Workflow

PSE is the only process safety platform integrating all of OSHA's Process Safety Management (PSM) elements and RMP requirements 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 audit leaders and team members. The Compliance Audit workflow allows you to effectively audit and improve the PSM program while documenting the requirements, approvals, and completed recommendations.

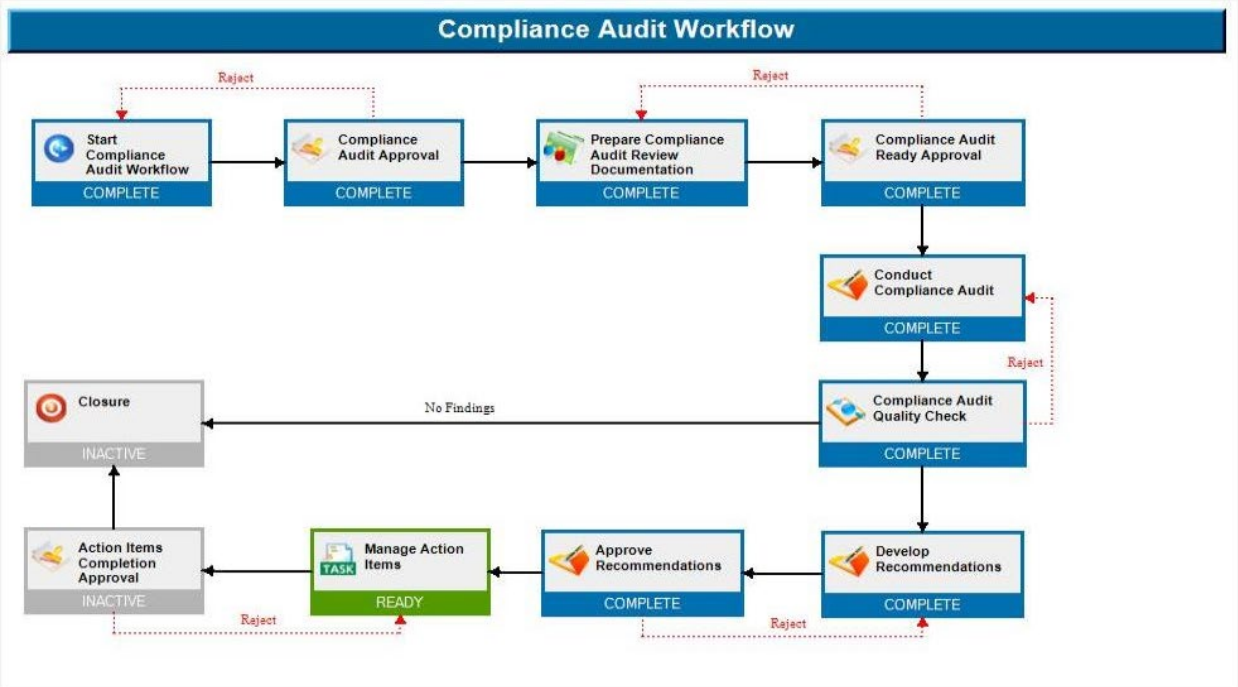
The Compliance Audit workflow establishes steps for audit initiation, approvals, preparation, execution, quality checks, and recommendation generation and implementation. Execution of the audit can utilize the company's audit protocols or commercial programs, such as ioMosaic's PSMPro™ program. PSMPro™ contains protocols that list all the PSM and RMP regulatory requirements and other safety audit requirements. This workflow (and all PSE workflows) can be easily customized to meet any company's specific needs.

PSE's Compliance Audit workflow module includes attachments for common information that should be provided to the auditors beforehand and places to save the completed protocols and audit report. The workflow also contains action items that can be assigned to specific personnel to implement the audit recommendations.

Figure 4 illustrates the Compliance Audit 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 Compliance Audit workflow within PSE ensures compliance audits are done on time with qualified people to identify and address potential gaps in the PSM/RMP program per the OSHA standards and guidelines.

Figure 4: Example of Compliance Audit Workflow

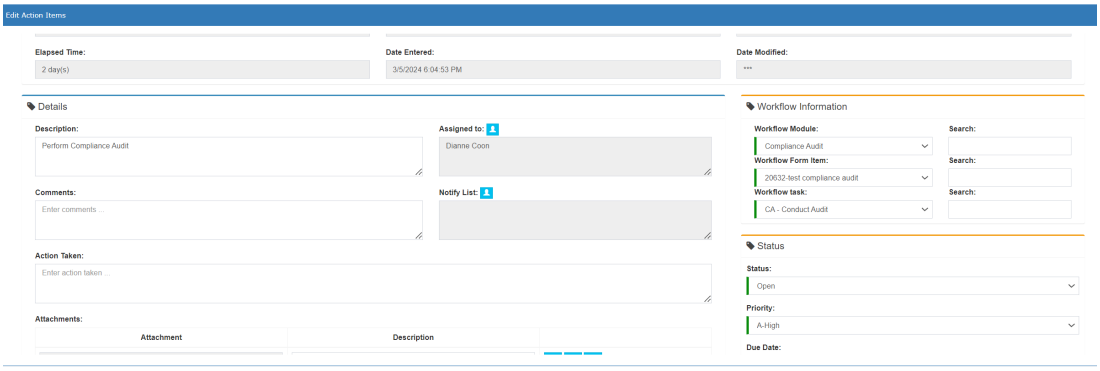


Source: ioMosaic Corporation – PSE

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 Compliance Audits. 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. Compliance Audit Action item



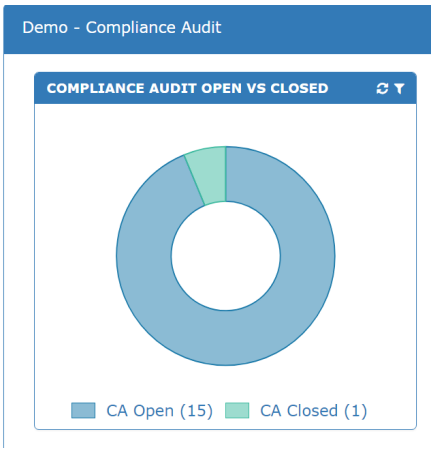
Source: ioMosaic Corporation – PSE

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 compliance audit activities, allowing organizations to identify trends and areas of concern. 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 Compliance Audits

The Challenge

The US Chemical Safety and Hazard Investigation Board (CSB) investigated a fire and subsequent explosion that occurred on April 26, 2018, at approximately 9:58 a.m., at Husky Energy's Superior Refining Company LLC refinery in Superior, Wisconsin ("Husky Superior Refinery"). The incident occurred during a planned turnaround with many employees and contractors onsite.

36 refinery and contract workers were injured and sought medical attention due to the incident. In addition, the chemical disaster caused approximately $550 million in property damage. During the event, Husky Superior Refinery reported that it released 39,000 pounds of a flammable hydrocarbon vapor mixture, which impacted nearby residents. The City of Superior evacuated 2,507 residents within 2 miles north, 3 miles to the east and west, and 10 miles south of the refinery. The City of Duluth, Minnesota, issued a shelter-in-place advisory at 8:00 p.m. to protect its residents.

The CSB determined that the Husky Superior Refinery explosion, which occurred during the shutdown of the FCC unit, was caused by a failure to control the airflow during the shutdown. This failure resulted from Husky Superior Refinery's deficiencies in FCC unit process knowledge about critical FCC unit transient operation safeguards that could have prevented the inadvertent mixing of air and hydrocarbons during a shutdown.

The report states that vague language and missing information in the FCC unit's shutdown procedure were symptoms of a refinery-wide operating procedure quality problem for many years before the incident. Husky Superior Refinery's operating procedures were known to lack clear instructions, consequences of deviation, and the steps required to correct and avoid deviations. The past two PSM and RMP compliance audits in 2013 and 2016 highlighted these concerns to refinery management. Despite finding these previous safety gaps, on the day of the incident, Husky Superior Refinery's FCC unit shutdown procedure still did not provide effective, safe operating limits, identify the consequence of deviating from these limits, or provide clear shutdown instructions to workers.

The CSB report conclusions include that Husky Superior Refinery's response to the 2013 and 2016 PSM and RMP compliance audit findings regarding the overall quality of the refinery's operating procedures was ineffective and ultimately did not improve the quality of the FCC unit's operating procedures enough to help prevent this incident. The complete CSB report can be viewed at this link.

An effective Compliance Audit process should have been in place to address the audit findings in a timely manner before this disaster occurred. However, an existing program solely relying on individuals to execute the compliance audit requirements and maintain the documentation can be prone to human error. Creating a documented program that relies on an electronic platform for audit initiation, approvals, preparation, execution, and the generation and timely implementation of recommendations can improve process safety oversight and employee and contractor safety. An electronic program can also reduce the risk of worker fatalities and injuries by identifying and addressing PSM program gaps.

Our Approach

Process Safety Enterprise® Compliance Audit 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 avoided the Husky incident referenced in the case study. Additionally, PSE can integrate multiple sites and various data into one uniform system (which could 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 a unique compliance audit process.

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 Compliance Audits are properly captured, accessible, and visible to employees.

The Benefits

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

The Compliance Audit workflow can ensure on-time audits that meet the PSM audit requirements. It can also ensure that recommendations are identified, approved, and implemented in a timely manner to address PSM program gaps and deficiencies.

Finally, the PSE workflows have KPIs that track open workflows and the percentage of open and completed workflows. The KPIs are graphed with interactive data, allowing you to drill down to the specific data. Reports can also be generated to view any overdue recommendations.

Conclusion

Managing Compliance Audits 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 create and execute an effective audit process and 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, ensuring items are addressed promptly.

PSE's customizable workflow module includes initiating, approving, executing, and reviewing compliance audits and identifying and implementing recommendations to address PSM/RMP program gaps and deficiencies. This process ensures that all necessary information is generated and captured 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

PSMPro™ component information link

PSM Essentials Training link

CSB complete 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