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Empowering Process Safety Culture: A Case Study on Leadership-Driven PSM Program

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Abstract

This case study examines a targeted initiative to enhance the PSM program at a chemical manufacturing site, focusing on cultivating a robust process safety culture. This study highlights the influential role of process safety professionals in inspiring all employees to consistently commit to process safety as a core value. Data collected from the site provide insights into the PSM program's impact on process safety culture.

The case study underscores the essential influence of site and corporate leadership in driving cultural change, emphasizing that clear and consistent messaging around PSM principles can inspire employees at all levels to engage proactively in safety initiatives. To address the upcoming generational transition known as the "great shift change," the program includes specific efforts to develop process safety leadership skills in newer employees, ensuring the continuity of process safety values.

Preliminary findings indicate that these leadership-focused strategies have led to measurable improvements in safety performance indicators at this site. This study offers a practical model for other facilities aiming to achieve sustainable process safety excellence through influential and inspirational leadership.

1 Background

Over the past fifty-five years, U.S. ammonia plants have weathered several volatile market conditions. Natural gas, as the primary feedstock, plays a crucial role in determining ammonia's market price, based on its per MMBTU cost. Investment cycles have alternated with cost-saving measures. Major capital projects and expansions historically come with hiring sprees and increased headcounts. Companies also bolster their workforce through extensive training programs for operators and technicians—investments that yield decades of accumulated knowledge and expertise. However, as these seasoned employees retire, much of that hard-earned process knowledge walks out the door. To understand the current state of the ammonia plant in this study, we first need to review the site's history.

April 16, 1964 – Dutch Make Good Neighbors – The Pembroke Journal

With parent companies Dutch State Mines and Pittsburg Plate Glass, Columbia Nitrogen Corporation built its first fertilizer plant in Augusta, GA¹.

November 18, 1971 – Nipro Expansion Will Create 70 New Jobs – The News Review

“Classes are being held to instruct the trainees in chemical production processes, Hatcher said. He pointed out that Columbia Nitrogen first employed trainees in 1963 and today most of the supervisors in operations are former trainees who started with no industrial background².”

December 22, 1973 – Natural Gas Curtailment – Griffin Daily News

A temporary emergency relief from the natural gas curtailment was granted to increase gas supply to two fertilizer plants. Without relief, the production rate would be around 20,000 tons per year compared to the normal 120,000 tons of ammonia solution per year³.

May 30, 1974 – Talmadge Blasts Fertilizer ‘Deal’ – The Summerville News

Senator Herman Talmadge, chairman of the Senate Committee on Agriculture and Forestry, criticized an Export-Import commitment at 6 percent for \$180 million to Russia while U.S. firms are paying between 11 and 12.5 percent financing for project investments⁴.

June 6, 1974 – Talmadge Promises Fertilizer Increase – The Summerville News

Senator Talmadge reported that Columbia Nitrogen was planning on diverting some industrial ammonia to agriculture use to help the regional fertilizer supply⁵.

June 23, 1977 – Expansion - New Openings – The Augusta News-Review

Columbia Nitrogen posted a hiring ad for new operator positions⁶.

EXPANSION - NEW OPENINGS

Columbia Nitrogen is taking applications for operator positions in their expanding facilities. Early applicants will be considered for the first groups to be trained and placed in positions with unusually good growth potential.

- \$819 per month starting salary
- \$50 per month shift premium
- company paid retirement plan
- full range of insurance benefits
- 10 paid holidays
- vacations and sick leave

Persons hired will work rotating shifts.
Both male and female applicants welcomed.

Contact

**PERSONNEL DEPARTMENT
COLUMBIA NITROGEN CORPORATION
P. O. BOX 1483
AUGUSTA, GA. 30903**

*Applications Available 24 hours per day
Apply at plant off Laney-Walker Extension*

"An Equal Opportunity Employer"

Figure 1. Hiring ad in The Augusta News-Review⁶.

The plant's evolution underscores the vital role of ongoing process safety training. When the facility expanded in 1971 and 1977, we brought in a new cohort of hires, some with limited industry experience. Through intensive training, these individuals transformed into skilled professionals and future managers, establishing a strong foundation in process safety. As many of these leaders have since retired, their career trajectories remind us that continuous, rigorous process safety training is essential—not just for developing expertise but also for ensuring that every team member is equipped to handle the challenges of modern operations.

2 Introduction

This case study examines the implementation of a targeted initiative aimed at improving the PSM program at a chemical manufacturing facility, with particular attention to fostering a robust safety culture. Process safety culture significantly impacts the effectiveness of PSM programs. Recognizing the critical role of site and corporate leadership, this initiative sought to utilize clear, consistent communication and focused training efforts, particularly emphasizing MOC and incident investigations. Through data collected before and after the initiative's implementation, this study analyzes how enhancements in these key PSM elements reflect improvements in

overall safety culture. Ultimately, this initiative aims to provide a practical, replicable model that other organizations can follow to achieve sustained excellence in process safety.

3 PSM Culture Change

Changing process safety culture requires a deliberate, multi-faceted approach that centers on leadership, training, and clear communication of process safety as a core value. This case study at our site illustrates critical requirements for such a transformation:

Influential Leadership

Both site and corporate leaders must actively champion process safety. Clear, consistent messaging from the top sets the tone for the entire organization, ensuring that every employee understands and embraces process safety as a non-negotiable core value. Management support and leadership will make or break the PSM culture at a site^{7, 8, 9}.

Meaningful Scorecards

Meaningful action to improve process safety culture requires the ability to see the information and make decisions. Scorecards should be limited to a few select metrics and reviewed with site management before being added to routine meeting agendas⁷.

Collective Responsibility

Process safety is a collective responsibility that extends beyond the PSM job title⁸. When every team member integrates safety into their daily tasks, we build a culture where identifying hazards, reporting concerns, and taking proactive measures becomes second nature. Process safety as a core value ensures safety is embedded in every decision and action.

Let's distill this information down to a single sentence: Changing process safety culture demands influential leadership that champions safety, targeted metrics that drive accountability, and a shared commitment from every team member to embed process safety as a core value in every decision and action.

The decision to focus specifically on MOC and incident investigation elements for data collection and analysis was strategic. These two elements are particularly indicative of an organization's underlying safety culture because they directly measure employees' proactive and reactive attitudes towards safety. Effective MOC practices reflect a willingness to rigorously assess risk before changes occur, highlighting an organization's commitment to proactive safety management. Similarly, thorough incident investigation reveals a culture's maturity in openly addressing incidents, identifying root causes without assigning blame, and learning to prevent recurrence. Together, these elements serve as diagnostic indicators, providing clear insights into the organization's safety values, accountability, and engagement across all levels of employees.

4 Safety as a Core Value

A priority is something that is important to you. Everyone juggles their priorities based on what is happening now. Examples of our business priorities are high reliability, low cost, timely deliveries, high profits, etc. All of these are important, but at times focus is placed on one over another. Such as meeting an order commitment for a high-volume customer may mean that you must spend more in overtime, shipping, or other resources to make the deadline. In this case customer satisfaction becomes a higher priority than lower cost to maintain a customer relationship. If safety is handled as a priority, you may have operators or maintenance personnel taking short cuts in their own safety just so they can get a plant back up and running quicker. In this case meeting production quotas becomes a higher priority than safety.

A core value is different in the respect that every decision you make is influenced by the desire to follow your value system. We all have been told by our parents that stealing or cheating is wrong. It was drilled into us and over time it became a core value. So, when you realize that your waiter didn't include the dessert on your bill, are you happy that you saved money, or do you bring it to their attention before you pay the bill? Following our core values ensures we do the right thing, even when no one is watching. If safety is a core value, no matter what other priorities we are dealing with, your people do not disregard their own safety or the safety of others just to satisfy the priority.

5 Recipe for Success

This section is a concise plan to improve process safety based on our PSM culture initiative.

Plant Manager Checklist

- ☐ Embrace safety as a core value.
- ☐ Review leading and lagging metrics with site PSM person.
- ☐ Review scorecards with site PSM person.
- ☐ Support logistics and planning for training sessions.
- ☐ Attend ALL PSM training sessions.
- ☐ In training sessions, assist in answering questions from trainees.
- ☐ Add scorecards to relevant daily/weekly meetings.
- ☐ In daily/weekly meetings, ask questions related to the key leading metrics. (E.g., Does this change need an MOC? Was the leak reported as a PSE?).

PSM Person Checklist

- ☐ Develop scorecards and review with leadership.
- ☐ Create MOC Basics training presentation (See appendix A).
- ☐ Create detailed MOC training presentation.
- ☐ Create a site "Closing My MOC Action Item" job aid (See appendix B).
- ☐ Create a site "Completing My MOC Approval" job aid.
- ☐ Create a site "Creating a New MOC" job aid.
- ☐ Create a site "Entering an Incident" job aid (See appendix C)
- ☐ Provide PSM Training

Training Schedule

Month 0: Train site managers and supervisors in MOC and PSE basics.

Month 1: Train operations B&C shifts in MOC and PSE basics.

Month 2: Train operations A&D shifts in MOC and PSE basics.

Month 3-6: Train remaining site personnel in MOC and PSE basics. Adjust the number of training sessions to ensure a reasonable number of people attending each training session.

Month 6-12: Detailed training on MOC and PSE. This training is directed at the personnel who will be using these systems in their job role. These training sessions cover the entire MOC standard and PSE reporting standard.

Appendix A contains an example presentation for MOC basics. The detailed MOC training is not included in the appendix since the presentation needs to be developed around an individual site's MOC standard and work processes.

Scorecards

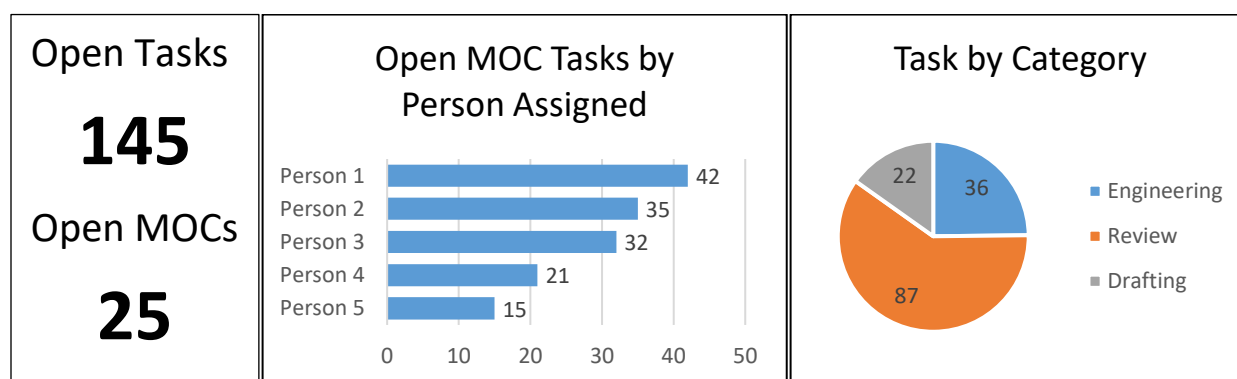


Figure 2: MOC Scorecard

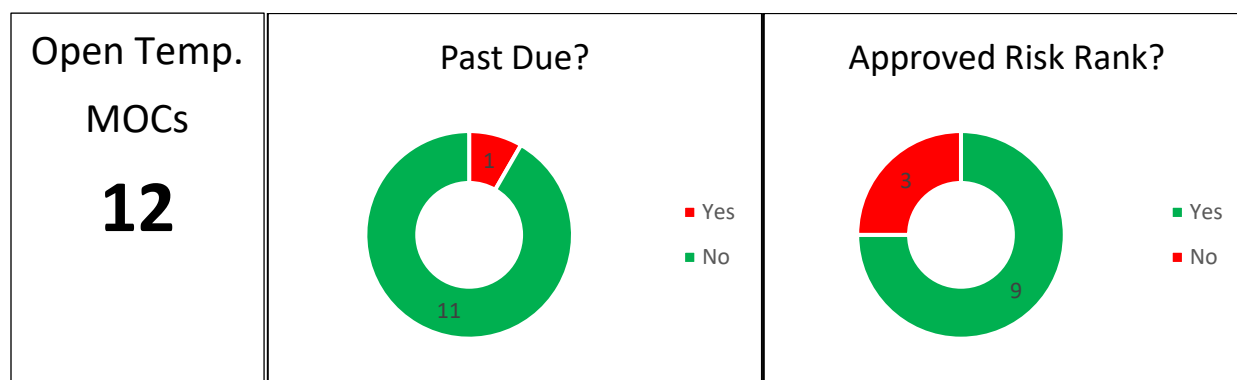


Figure 3: Temporary MOC Scorecard

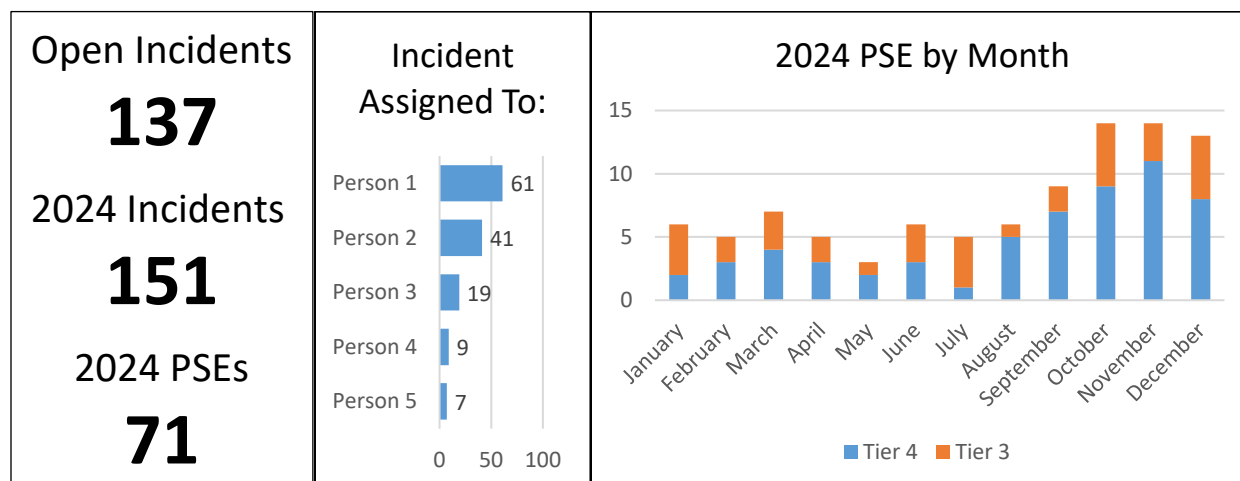


Figure 4: PSE Scorecard

Long Term Checklist

- ☐ Add MOC and PSE training modules to employee onboarding training and operations refresher and maintenance refresher training.
- ☐ Repeat manager training every two years.
- ☐ Document survey results from training sessions.
- ☐ Collect and analyze data.

6 Data Collection and Analysis

Metrics

The site chose the Management of Change (MOC) and incident investigation elements of PSM as key initial indicators due to their diagnostic value in evaluating safety culture maturity. Specifically, three metrics were targeted:

- MOC actions that are open for longer than 90 days.
- Number of past due temporary MOCs.
- Number of Tier 3 and Tier 4 process safety events reported.

Additionally, site leadership incorporated MOC and incident reporting discussions into daily and weekly meetings to drive accountability and proactive engagement.

Data Collection

Process safety event reports are managed at the site using quality management software, ETQ Reliance®, a software implemented at the site in 2010. Data analysis excluded the merger year (2018) to ensure consistency, spanning from 2019 to 2024, extracted via a Microsoft Power BI dashboard. MOC data, managed through corporate software, followed the same criteria.

MOC Action Closure

Historical trends showed consistent MOC activity, averaging 180 MOCs annually. However, the recent initiative significantly reduced action item closure times due to clear guidance, targeted training sessions (as outlined in the PSM Person Checklist), and site management's active involvement in monitoring progress and addressing overdue actions.

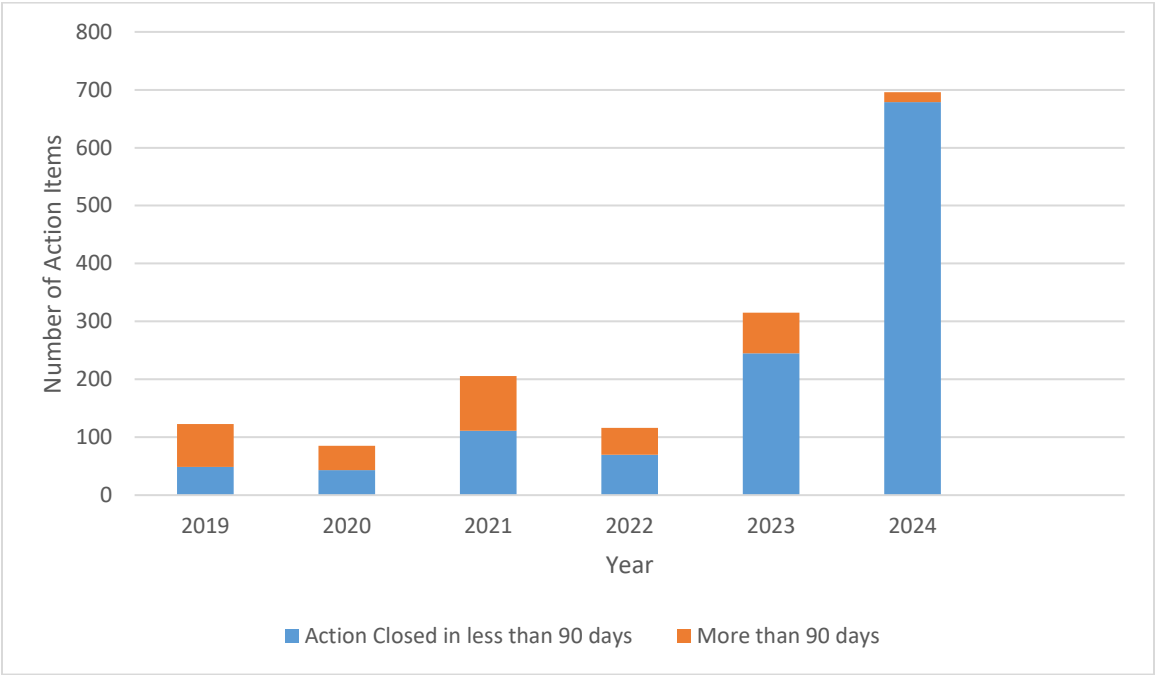


Table 1: MOC Action Closure by Year

Past Due Temporary MOCs

Temporary MOCs past their due date were consistently addressed through risk reviews and updated scheduling, a practice formalized in site management’s routine engagement, as indicated by their adherence to the Plant Manager Checklist. This practice significantly reduced complacency, reinforcing the site’s commitment to timely risk management.

Process Safety Event Reporting

Tier 3 and Tier 4 PSE reporting increased significantly post-initiative, reflecting enhanced awareness and frontline engagement, particularly notable due to broader employee participation in reporting. This increase aligns with the training and communication objectives embedded in both manager and site-level checklists, highlighting leadership’s role in fostering a proactive reporting culture.

Comparative analyses with similar sites, located in appendix E, showed variability, indicating site-specific improvements attributable to the PSM culture initiative rather than broader corporate actions. Further standardizing data by production rates confirmed a negative

correlation between production rate and Tier 3 incidents, validating the notion that operational reliability is closely linked to safety performance.

7 Conclusion

This case study demonstrates the effectiveness of targeted leadership and communication strategies focused specifically on the Management of Change and incident investigation elements of a PSM program. By selecting these elements as focal points for improving process safety culture, measurable enhancements were observed through reduced MOC closure times, increased proactive incident reporting, and broader employee engagement. These outcomes underscore that clear leadership involvement, consistent messaging, and targeted training not only improve compliance but also significantly influence the foundational safety culture of a site. Facilities aiming for sustainable improvements in process safety can adapt this practical, leadership-driven approach to strengthen their safety performance and organizational culture.

8 References

- [1] Dutch Make Good Neighbors. *The Pembroke Journal*. April 16, 1964. Accessed January 22, 2025.
- [2] Nipro Expansion Will Create 70 New Jobs. *The News Review*. November 18, 1971. Accessed January 22, 2025.
- [3] Augusta Plants Get Relief. *Griffin Daily News*. December 22, 1973:6. Accessed January 22, 2025.
- [4] Talmadge Blasts Fertilizer ‘Deal.’ *The Summerville News*. May 30, 1974:6-B. Accessed January 22, 2025.
- [5] Talmadge Promises Fertilizer Increase. *The Summerville News*. June 6, 1974:15-B. Accessed January 22, 2025.
- [6] Expansion – New Openings. *The Augusta News Review*. June 23, 1977:5. Accessed January 22, 2025.
- [7] Kenan, S., Kadri, S. Process Safety Leading Indicators Survey–February 2013. Center for Chemical Process Safety. White Paper. Published online 23 January 2014 in Wiley Online Library. DOI 10.1002/prs.11654. Accessed 21 August 2024.
- [8] Kadri, S.H., Jones, D.W. Nurturing a Strong Process Safety Culture. *Process Safety Progress*. Volume 25 No. 1 March 2006 pages 16-20.
- [9] Broadribb, MP. Leading by example: Culture, leadership, and accountability. *Process Saf Prog*. 2024; 1-4. doi:10.1002/prs.12634
- [10] CCPS, Process Safety Leading and Lagging Metrics, AIChE, New York, 2011, Available at <http://www.aiche.org/ccps/resources/overview/process-safety-metrics/> recommended-process-safety-metrics. Accessed 18 February 2025.

9 Appendix A – MOC Basics Presentation

MOC Basics Presentation

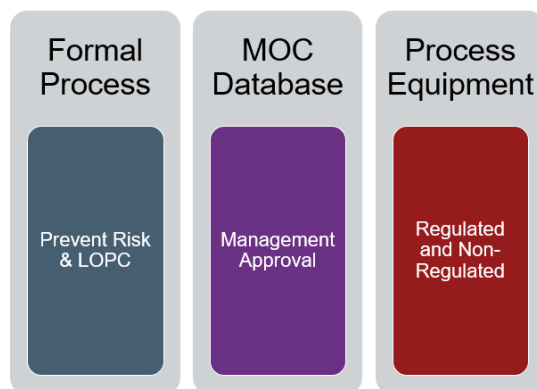
Slide 1: Title

Slide 2: MOC Topics to be Covered: Management of Change (MOC) Overview, MOC Exemptions, Replacement in Kind (RIK), Temporary MOCs, Pre-Startup Safety Review (PSSR)

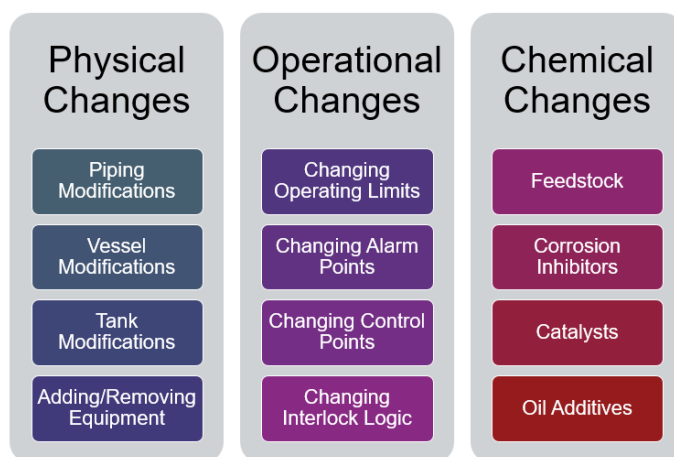
Slide 3: Safety Moment related to MOC.

Slide 4: Acronyms: MOC – Management of Change, RIK – Replacement in Kind, PSSR – Pre-Startup Safety Review, PSM – Process Safety Management, LOPC – Loss of Primary Containment, P&ID – Piping and Instrumentation Diagram, PFD – Process Flow Diagram

Slide 5: MOC Overview



Slide 6: MOC Types



Slide 7: MOC Description

When creating an MOC, the description should be detailed enough that it is easy to understand what is being changed.

Example 1:

Change carbon steel piping to stainless piping

Needs more information

Example 2:

Existing schedule 40 2" piping between pump 1 and vessel 1 is carbon steel.

Carbon steel has proven to be unreliable due to corrosion in this service.

Replace schedule 40 2" section of piping between pump 1 and vessel 1 with 304L stainless steel.

Clearly defines the change

Slide 8: MOC Documentation

When an MOC is created, all applicable documentation should be redlined (if applicable) and attached prior to sending for Management Approval. This includes documents such as: Drawings, P&IDs, PFDs, Electrical, Loop drawings, Vendor or Equipment Drawings, Spec Sheets, Calculations, Manufacture Information/Manuals, Photos, SDS, Procedure(s), Equipment Quotes, Emails, Any additional supporting documentation

Slide 9: MOC Exemptions

The following changes shall be excluded from this Management of Change Standard:

- Replacement in Kind (RIK),
- Routine changes which are covered by an approved operations or maintenance procedure,
- PSI Errors - if an error to the PSI is identified, it should be reported as per Process Safety Event reporting requirements
- Changes to Inspection, testing, and preventative (ITPM) plans
- Changes to SOPs
- Approval of chemicals for site use which will not interact or enter the facility processes.
- Organizational Changes or personnel changes
- Critical Defeats
- Changes to PSM, Engineering, SHE, and other NPETC standards and practices

Slide 10: Replacement in Kind

- Materials?
- Functional parameters (performance)?
- Size?
- Style?
- Model Number?
- Manufacture?



Unless allowed in the specification and previously identified in the PSI

Slide 11: Replacement in Kind Examples

Work Description	RIK	MOC	Concerns
Replacing a motor operated valve with an identical spare from Stores Stock	X		
Adding a valve where there currently is not one in the process		X	Potential to invalidate SOPs, update to P&ID, impact Lock out Tag Out procedure, new leak release point especially for vents/drains, block point which may require overpressure or thermal relief protection, new cause for no/low flow scenario in PHA, which could change associated risk, accessibility
Raising a tank level above the established safe high level to temporarily accommodate more inventory		X	Potential to overflow tank, resulting in loss of primary containment, tank failure, foundation failure, elevated risk becoming acclimated abnormal operating conditions, SOCLs requirements
Replace a mass flow meter with a dP flow meter		X	Different technology, potential for incompatibility for process conditions
Replace 3" long SS studs with 3 ½" long SS studs for bolting a flange	X		

Slide 12: Temporary MOCs

What is a temporary change?

- In place for a limited duration
- Is intended to be removed or undone

Examples:

- Performing a trial or test
- Installing a rental piece of equipment
- Installing Leak Repair Kit

Slide 13: Pre-Startup Safety Review (PSSR)

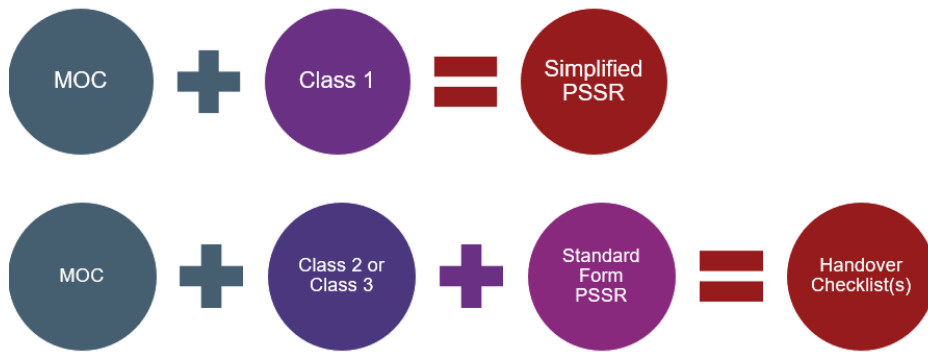
Why is a PSSR important?

- It is the process for validating that the process or equipment is safe to put into service by verifying the design of the equipment, the condition of the equipment, and the preparedness of operations personnel.

The purpose of a PSSR is to prevent serious loss of containment and minimize the risk for personnel injury

Slide 14: PSSR

Different PSSR Forms are available and are based on project complexity:



10 Appendix B – Closing My MOC Action Item Job Aid

Table of Contents

- Open Action Item
- Attach Document to Action Item
- Close Action Item
- Verify Action Item Closure

Open Action Item

1. You will receive an email notification alerting you that an item has been assigned to you.

Screenshot of Notification Email

2. Click the link to open the action item.

Screenshot

3. You can also find your action item by logging into the hyperlink(MOC application).

4. Click the “My Action Items” button.

Screenshot

5. Include additional steps and screenshots as needed...

Attach Document to Action Item

11. Click “Upload Attachment” to add the documentation supporting the actions taken.

Screenshot

12. Include additional steps and screenshots as needed...

Close Action Item

15. Click “Complete this Action”

Screenshot

16. Include additional steps and screenshots as needed...

Verify Action Item Closure

20. Navigate to the “Action Summary”

21. Verify the “Completed On” date is populated

Screenshot

22. Include additional steps and screenshots as needed...

11 Appendix C – Entering an Incident Job Aid

Table of Contents

- Entering an Incident
- What Happened
- Operational Data
- Incident Identification
- Enter Incident Type Details
- Send Incident for Classification Identification

Entering an Incident

The incident module allows us to efficiently handle and track various types of incidents or issues that may occur, such as process safety events, equipment failures, personal safety incidents, or service disruptions.

Keeping track of such incidents helps to take necessary safety measures & manage corrective actions which prevent repeat incidents. Below is a guide for entering incidents.

1. Log into the hyperlink(incident portal).
2. Open the incidents module.
3. Include additional steps and screenshots as needed...

Screenshot

What Happened

In the “what happened” section of the incident, each applicable category should be selected. This will categorize the incident and help document the applicable information.

5. Include additional steps and screenshots as needed...

Screenshot

Operational Data

In this section, enter the details pertaining to the incident. All required fields must be populated.

7. Include additional steps and screenshots as needed...

Screenshot

Incident Identification

21. Enter the actual consequence.

22. Include additional steps and screenshots as needed...

Screenshot

Enter Incident Type Details

24. Enter the information for the incident type selected in the Incident Identification step.

25. Include additional steps and screenshots as needed...

Screenshot

Send Incident for Classification Identification

28. Click on the Save button.

Screenshot

29. Click on the Send button.

Screenshot

30. Include additional steps and screenshots as needed...

Screenshot

Note: An email notification will automatically be sent to the person assigned to the Classification Identification stage.

12 Appendix D – Definitions

“Lagging” Metrics - a retrospective set of metrics that are based on incidents that meet the threshold of severity that should be reported as part of the industry-wide process safety metric¹⁰.

“Leading” Metrics – a forward looking set of metrics which indicate the performance of the key work processes, operating discipline, or layers of protection that prevent incidents¹⁰.

“Near Miss” and other internal Lagging Metrics – the description of less severe incidents (i.e., below the threshold for inclusion in the industry lagging metric), or unsafe conditions which activated one or more layers of protection. Although these events are actual events (i.e., a “lagging” metric), they are generally considered to be a good indicator of conditions which could ultimately lead to a more severe incident¹⁰.

13 Appendix E – Process Safety Event Reporting Data Analysis Method

Each site listed in this comparison produces the same chemical products from the same feedstocks. The plants operate continuously throughout the year with operations teams on shifts. Each site has a major plant turnaround roughly every 4 years. The three sites in this comparison are in three different states in the continental United States. Comparison with other sites bring in several other variables. The simplest variable we can use for data standardization across sites is the annual production rate of each site. The annual production rate of each site is then divided by a meaningless universal constant to generate consistent, unitless production values for each site using the following formula:

$$\text{Standardized Annual Production} = \frac{\text{Annual Production (sTons)}}{\text{xxx universal constant}}$$

The standardized annual production values range from a low production of 0.76 at a site during a turnaround year to a high production of 1.36.

Is there correlation between production rate and PSE reporting?

Using the numbers from all three sites for number of PSEs at each annual production rate, we can evaluate the correlation between production rate and PSE reporting. Tier 3 PSEs have a correlation coefficient of -0.84 while Tier 4s have a coefficient of -0.32.

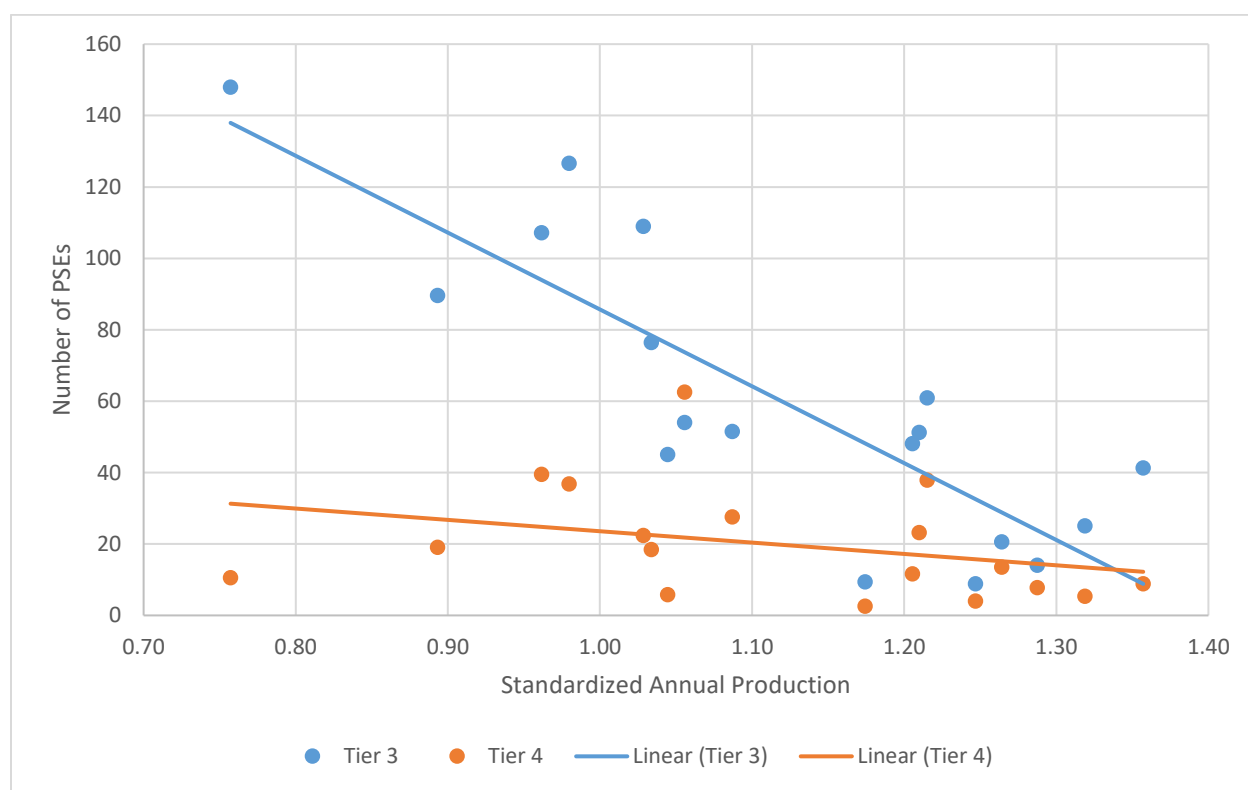


Table 2: Scatter Plot of standardized annual production and Tier 3 and Tier 4 PSEs.

PSE reporting for tier 3 incidents appears to consistently trend down with increased production rates. Tier 4 incidents, although having a negative correlation coefficient, have a few outliers and do not seem to trend up or down with changes in production rate. Based on the definition of Tier 4 PSEs, it would not make sense for it to trend with production rates. The trend of Tier 3 PSEs decreasing with increased production rates supports the rule of thumb that a reliable plant is a safe plant.

At our site, we know that the PSM culture initiative has significantly increased PSE reporting, but we need to look at whether other corporate initiatives influenced PSE reporting across multiple sites. The correlation was calculated by converting the year values to integers beginning at 1 for year 2019. Our site has a correlation coefficient of 0.84 for Tier 3 PSEs and 0.72 for Tier 4 PSEs. Comparison site 1 and 2 both have minor, positive correlation coefficients of 0.13 and 0.14 for Tier 3 PSEs. Comparison site 1 and 2 have drastically different correlations for Tier 4 PSEs. These differences can be seen in Table 4. The lack of consistent trends indicates that there is not a correlation between year and number of PSEs reported.

Since there is a correlation between production rate and number of PSEs reported, we need to standardize the PSE data using the standardized annual production values. Scatter plots of the standardized PSE counts by year are shown below.

$$\text{Standardized PSE Count} = \frac{\text{Number of PSEs}}{\text{Standardized Annual Production}}$$

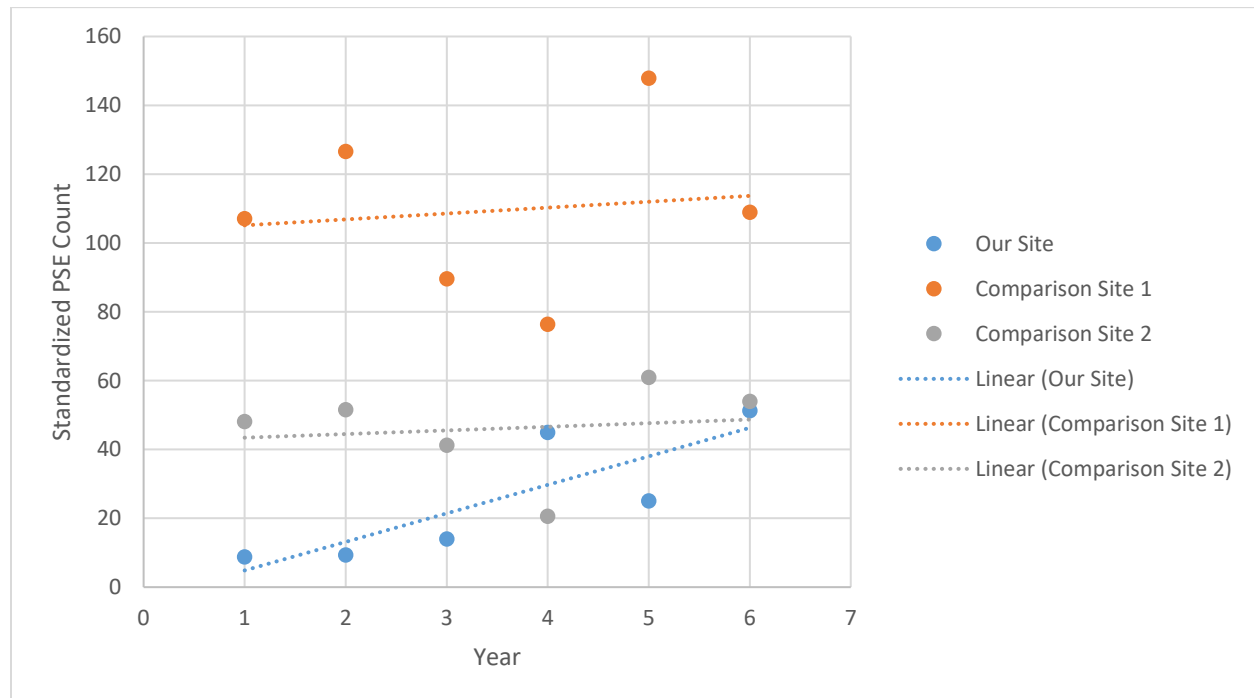


Table 3: Standardized Tier 3 PSE Count.

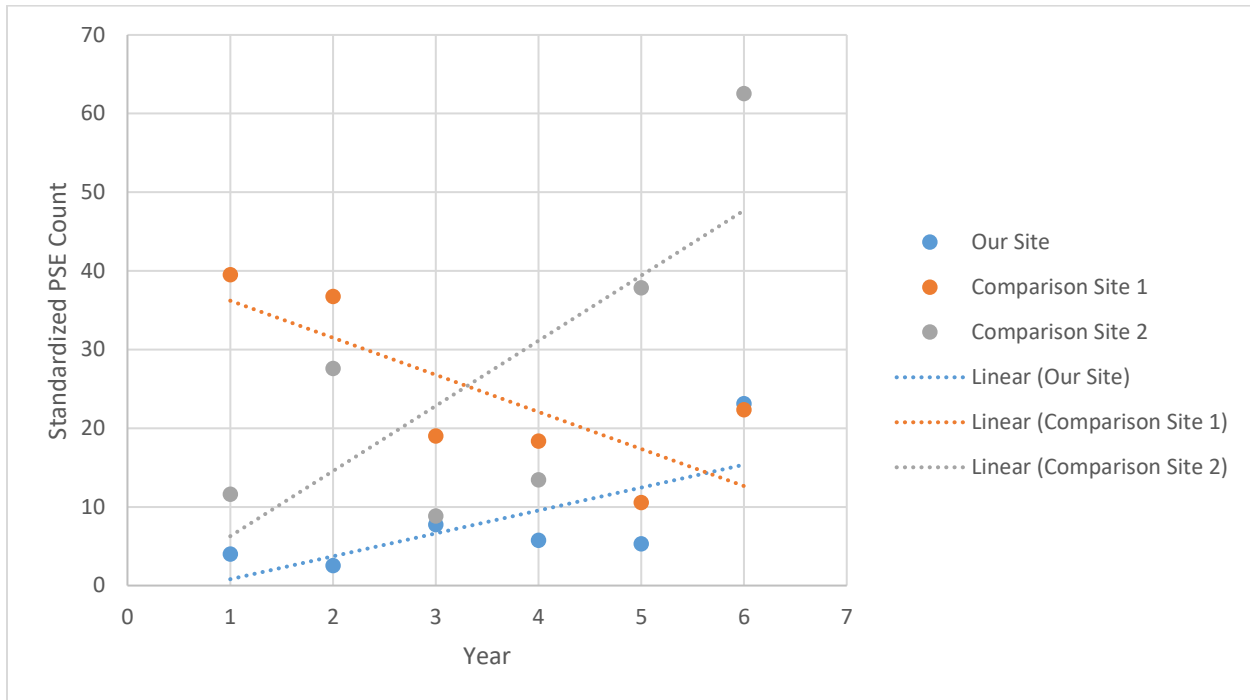


Table 4: Standardized Tier 4 PSE Count.

At our site, the total number of Tier 3 and Tier 4 PSEs reported is not the only thing that is changing. During years 1 and 2, there were very few PSEs reported, and they were primarily reported by a single person with a PSM job title. Year 3 had an increase in reporting, but most of the reporting was done by one person. Years 4 and 5 remained close to the same number of PSEs reported, but almost all the reporting was done by frontline operations supervisors along with other engineering and management personnel. A total of 15 individuals participated in PSE reporting these years. After the PSM Culture initiative between years 5 and 6, the site has 22 individuals directly participating in PSE reporting. The upward trend in PSE reporting underscores a growing awareness and proactive engagement in process safety reporting.

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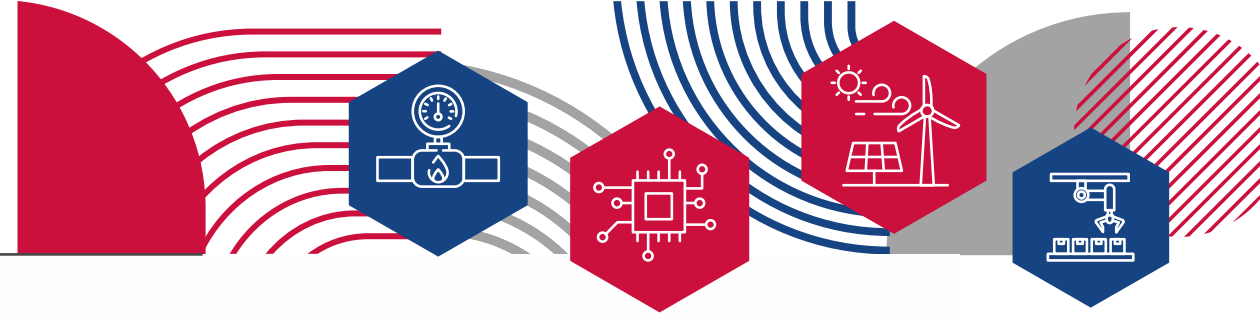
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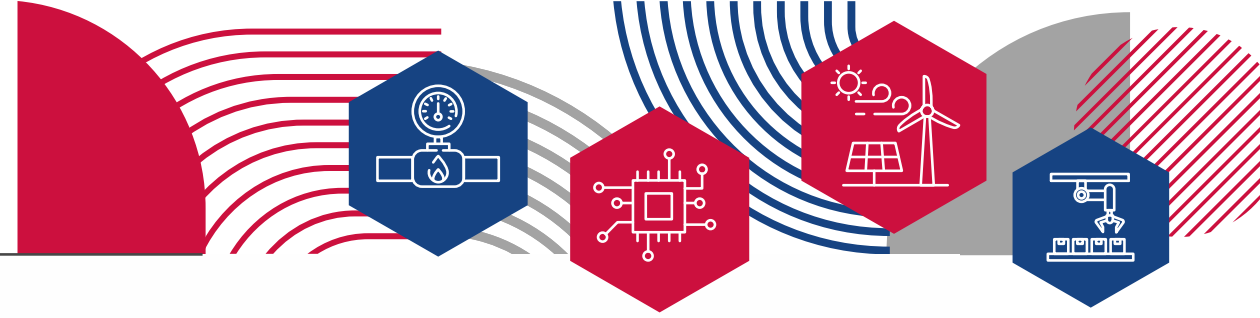
Hilton Anatole | Dallas, TX

Empowering Process Safety Culture

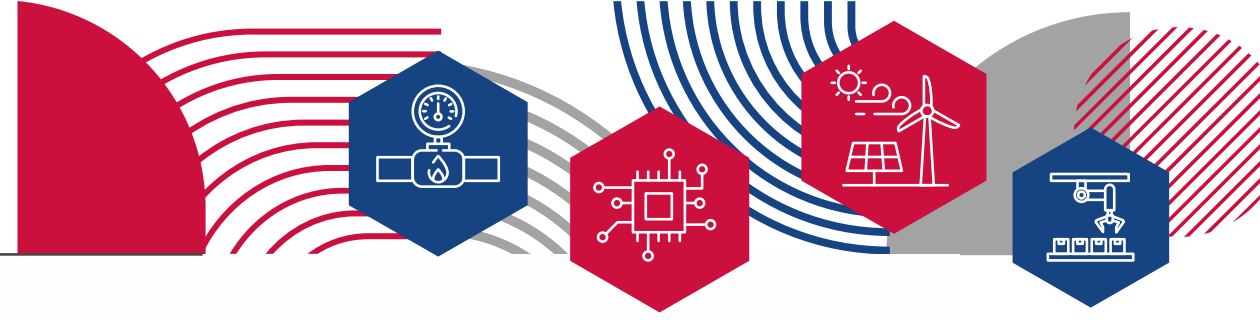
A Case Study on a Leadership-Driven
PSM Program



What Makes a Good Leader?

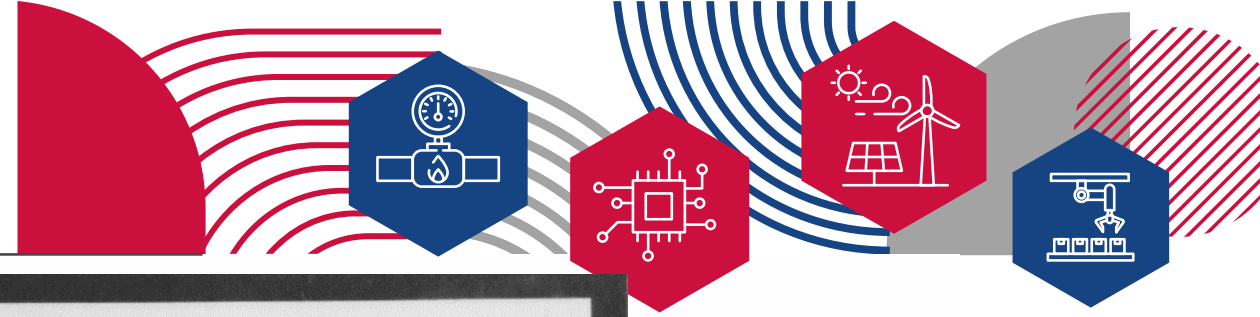


Influential Leadership in Process Safety Culture



Overview

- Background
- PSM Culture Strategy
- Key Metrics
- Results



- 1977 - *The Augusta News Review*

EXPANSION - NEW OPENINGS

Columbia Nitrogen is taking applications for operator positions in their expanding facilities. Early applicants will be considered for the first groups to be trained and placed in positions with unusually good growth potential.

- \$819 per month starting salary
- \$50 per month shift premium
- company paid retirement plan
- full range of insurance benefits
- 10 paid holidays
- vacations and sick leave

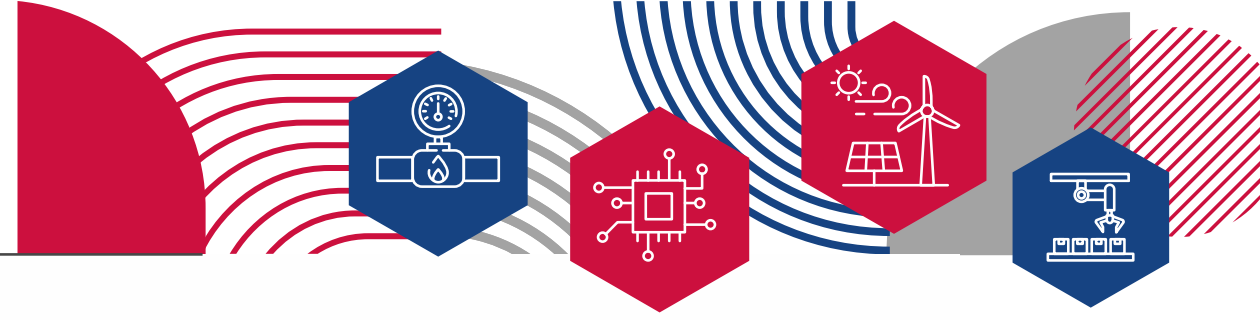
Persons hired will work rotating shifts.
Both male and female applicants welcomed.

Contact

**PERSONNEL DEPARTMENT
COLUMBIA NITROGEN CORPORATION
P. O. BOX 1483
AUGUSTA, GA. 30903**

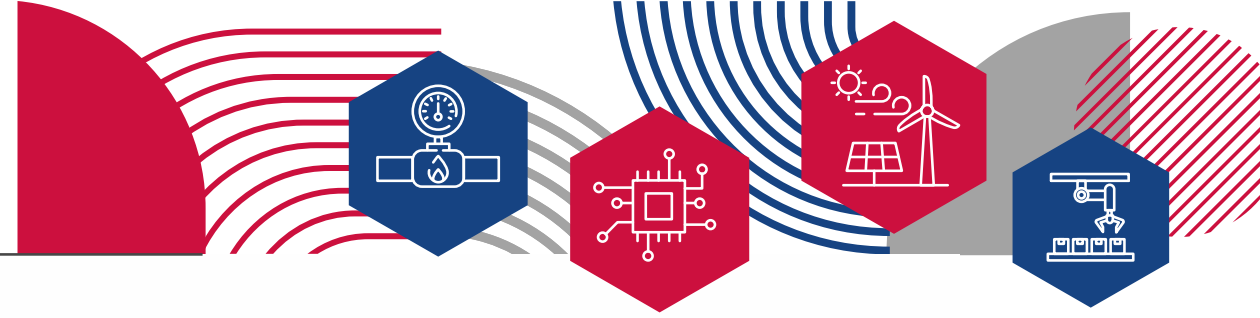
*Applications Available 24 hours per day
Apply at plant off Laney-Walker Extension*

"An Equal Opportunity Employer"



Strategy

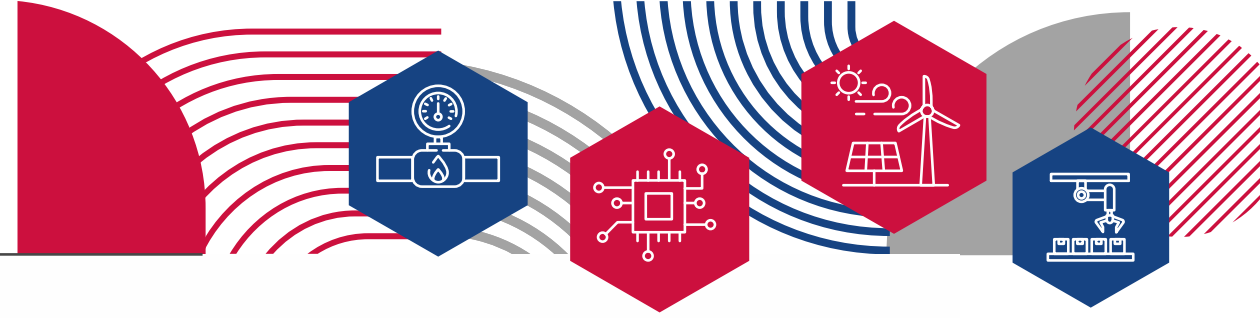
- Influential Leadership
- Meaningful Scorecards
- Collective Responsibility



Strategy

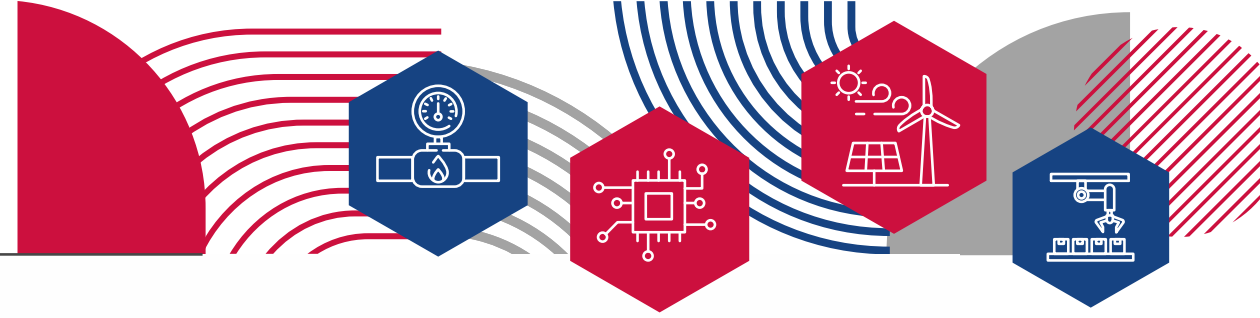
- Influential Leadership
- Meaningful Scorecards
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Results



Key Metrics

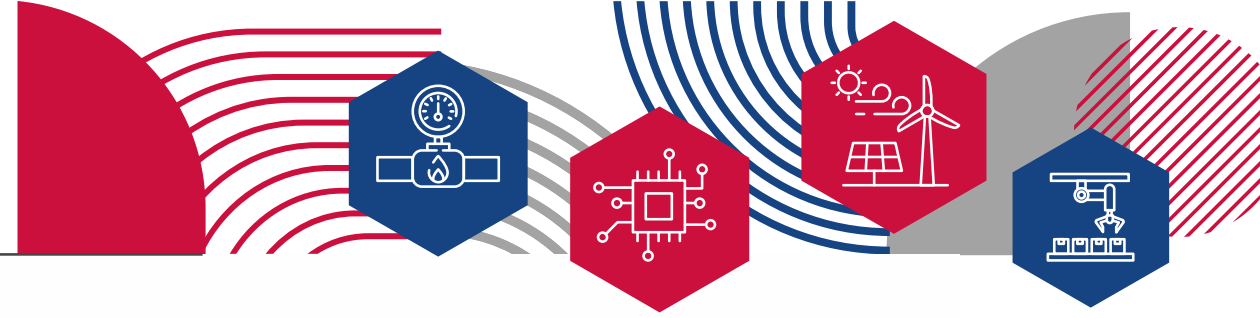
- Process Safety Event Reporting
 - Tier 3 and Tier 4 reporting
- Management of Change
 - Action item closure timeline



Recipe for Success



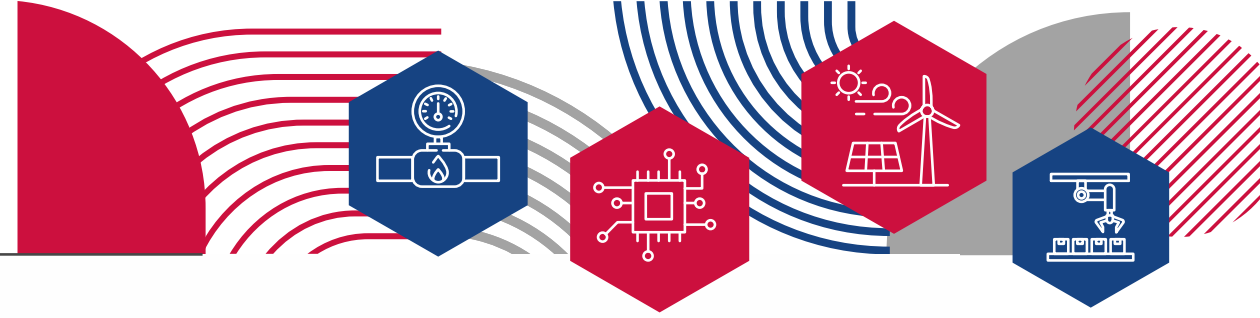
Oldest Recipe in the World
Credit: Yale Babylonian
Collection



Checklist: General Manager

Plant Manager Checklist

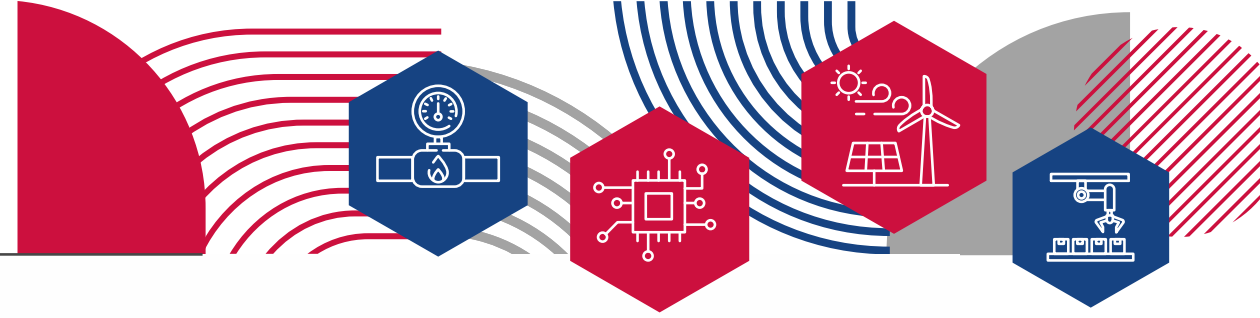
- ☐ Embrace safety as a core value.
- ☐ Review leading and lagging metrics with site PSM person.
- ☐ Review scorecards with site PSM person.
- ☐ Support logistics and planning for training sessions.
- ☐ Attend ALL PSM training sessions.
- ☐ In training sessions, assist in answering questions from trainees.
- ☐ Add scorecards to relevant daily/weekly meetings.
- ☐ In daily/weekly meetings, ask questions related to the key leading metrics. (E.g., Does this change need an MOC? Was the leak reported as a PSE?).



Checklist: PSM Professional

PSM Person Checklist

- ☐ Develop scorecards and review with leadership.
- ☐ Create MOC Basics training presentation (See appendix A).
- ☐ Create detailed MOC training presentation.
- ☐ Create a site “Closing My MOC Action Item” job aid (See appendix B).
- ☐ Create a site “Completing My MOC Approval” job aid.
- ☐ Create a site “Creating a New MOC” job aid.
- ☐ Create a site “Entering an Incident” job aid (See appendix C)
- ☐ Provide PSM Training



Training Schedule

Training Schedule

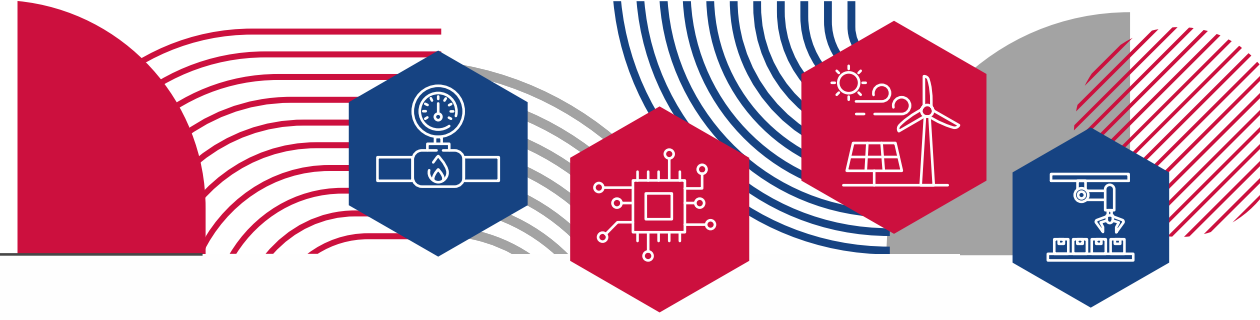
Month 0: Train site managers and supervisors in MOC and PSE basics.

Month 1: Train operations B&C shifts in MOC and PSE basics.

Month 2: Train operations A&D shifts in MOC and PSE basics.

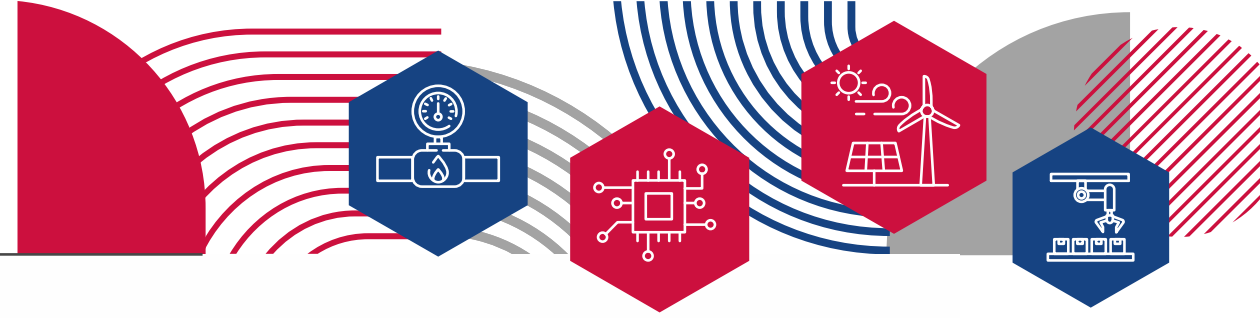
Month 3-6: Train remaining site personnel in MOC and PSE basics. Adjust the number of training sessions to ensure a reasonable number of people attending each training session.

Month 6-12: Detailed training on MOC and PSE. This training is directed at the personnel who will be using these systems in their job role. These training sessions cover the entire MOC standard and PSE reporting standard.



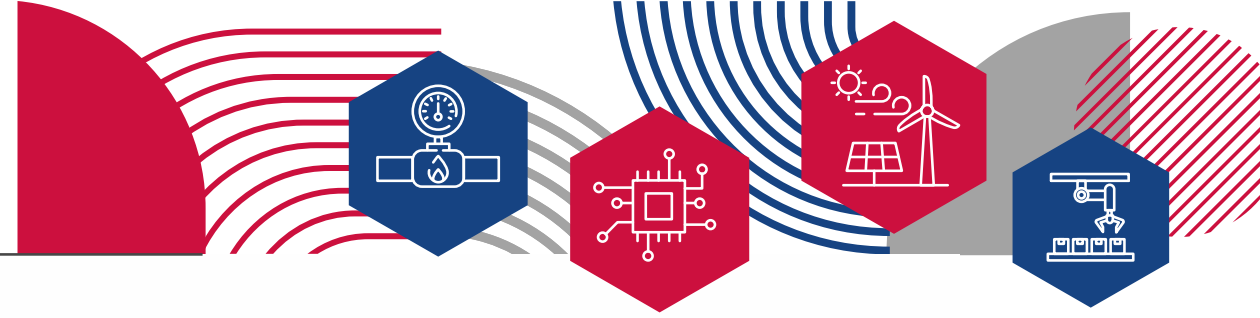
Results

- MOC Action Closure by Year



Results

- Process Safety Event Reported by Year



Q&A

- Thank you for your time!
- Questions?
- Contact Information:
- morristtu@gmail.com