VISION 20/20 | CCPS An AIChE Technology Alliance Center for Chemical Process Safety

Assessment Tool

Committed Culture

	Expectation is well documented and routinely followed	Expectation is documented but not routinely followed	Expectation is not documented
Executives (top company leadership) personally and visibly lead process safety.			
Process Safety topics are regular agenda items at board/executive meetings.			
Executives (top company leadership) have Process Safety performance goals and objectives (beyond stating metrics) and are held accountable for process safety performance (for example, through compensation or other means).			
Executives (top company leadership) establish and actively monitor process safety lagging metrics.			
Executives (top company leadership) establish and actively monitor process safety leading metrics.			
Executives (top company leadership) respond to poor process safety performance with the intent to identify and address root causes.			
Executives (top company leadership) recognize good process safety performance and identify learnings to leverage across the site/company.			
Executives (top company leadership) talk knowledgeably about the major hazards and risks at each site (as applicable) and the associated critical barriers/safeguards.			
Process safety activities are included in annual operating plans and budgets.			
Executives (top company leadership) routinely visit production units and have meaningful discussions regarding process safety related issues with operations and maintenance.			
Executives (top company leadership) engage constructively with relevant site level leadership regarding potentially significant process safety incidents or poor process safety performance.			
Operators and mechanics diligently follow procedures and speak up when they suspect a problem or see an opportunity for improvement.			
Operators and mechanics follow procedures as written or stop and seek guidance if an established procedure appears wrong, unsafe, or otherwise presents a hazard.			
Operators and mechanics freely raise process safety concerns to their leadership.			
Operators and mechanics voluntarily engage in and take ownership of process safety-related activities.			
Operators and mechanics consistently report process safety incidents and near misses.			
Line supervision and their leaders verify work is done properly, intervene to correct situations, and openly communicate negative news to management.			

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Line supervision and their leaders actively participate in Management of Change (MOC) and Pre-Start-up Safety Reviews (PSSRs).			
The status of incident investigation, audit findings and other process safety related actions are regularly communicated to operations and maintenance staff.			
Unit and plant management conduct regular walk-throughs of the unit, for the purpose of identifying process safety-relevant items of concern or good practices, and personally follow-up.			
Unit managers, engineers and technical specialists routinely dialog with unit operators and mechanics about process safety relevant items.			
Line supervision and their leaders personally monitor employee conformance with operating, maintenance, and permit to work procedures (e.g. hot work, confined space, line break, Lock out / Tag out, etc.).			
Line supervision and their leaders openly and honestly communicate process safety issues or concerns to their management (without altering the message to seem more positive), including displaying managerial courage toward securing additional resources, if needed, when presented with challenges from above.			
All employees and contractors commit to "do it right" and have a plan for when it goes wrong.			
Maintenance staff have a heightened sense of awareness regarding potential impacts of equipment failure and respond proactively.			
Operators understand the potential impacts of deviations outside of documented process boundaries or unsafe conditions and will reliably take appropriate corrective actions.			
Engineers and project managers responsible for equipment design and maintenance are committed to seek out and adhere to applicable codes, standards of practice, industry guidance, and/or established internal standards.			
Contractors are trained on process safety hazards and their tasks are done in accordance with plant policies such as LOTO, Confined Space, Hot Work, Line Break, Management of Change, etc.			

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Disciplined Adherence to Standards

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Companies identify, document, and diligently follow standards for new equipment.			
Standards (internal or common industry standards) for new equipment are clearly identified.			
Where an exemption/deviation from accepted practices are required, the exemption/deviation is reviewed, adequate additional safeguards are added if deemed necessary and is approved at an appropriate level, commensurate with the risk.			
Employees that can impact process safety performance have access to relevant internal or common industry standards.			
Companies also identify, document, and diligently follow a set of standards applicable to existing equipment.			
Standards (internal or common industry standards) for existing fabricated equipment, such as pressure vessels, piping, and tanks, have been documented.			
The MOC system prompts the use of appropriate internal/external standards.			
Companies identify and manage process safety risks arising from gaps against these standards.			
A process exists (i.e. audits or other assessments) to evaluate new standards when purchasing/fabricating new equipment.			
A process exists (i.e. audits, other assessments, comparisons to current standards) to periodically verify that existing (aging) equipment is fit for service and deficiencies are acted upon.			
Managers and supervisors actively support conformance with standards and practices.			
As industry standards evolve, companies codify significant new learnings in their identified standards for existing (and new) equipment.			
As identified or relevant industry standards are updated, relevant changes are included within company practice.			

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Enhanced Application and Sharing of Lessons Learned

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We learn from accidents, near misses, industry benchmarking, and success stories.			
External incident learnings are shared and are applied, where applicable (e.g., circulating a process safety bulletin, reviewing operations against findings from CSB investigations, etc.).			
Industry best practices related to process safety are implemented, where applicable (e.g., using CCPS guidelines, NFPA standards, API recommended practices, etc.).			
Subject matter experts are included in incident investigations.			
Incident investigations are reviewed for quality and consistency.			
Corrective actions from incident investigations are tracked to completion.			
First, identify the learnings and recognize the value in sharing it with others.			
Safe operating limit exceedances and safety system challenges are recorded and investigated.			
Incident and near miss investigations identify root causes, including those that are related to human factors, management systems, and leadership.			
Incidents and near misses are categorized and investigated to the level of the potential worst credible consequence.			
Incident characteristics (e.g. frequency, common causes, patterns) are captured and analyzed for trends and learnings.			
Incidents, root causes, and applicable learnings are shared and applied, where applicable, across the company.			
Second, use a system to efficiently share learnings, without overwhelming the organization.			
Incident investigation status, findings, and action items are regularly shared with operations, maintenance, and other affected employees (e.g., at production meetings, using whiteboards or other communication methods).			
Learnings from past significant events are communicated periodically to create “institutional memory”.			

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Third, embed the learning in standards or practices, and check if existing equipment or processes require modification.			
The company incorporates learnings from internal/external incidents into internal standards, practices, and/or procedures.			
Key learnings are applied to similar existing equipment and, if applicable, action items are developed and tracked to closure.			
Lessons learned are shared promptly with active project teams.			
Lessons learned are discussed during PHAs and other risk analysis studies and similar scenarios are considered, as appropriate.			

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Intentional Competency Development

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Intentional competency development includes understanding competency expectations, providing educational resources, and allowing time for people to build competency.			
Personnel (i.e. operators, engineers, leaders, unit managers) receive training on the site process hazards and barriers/safeguards that they will be responsible to manage.			
Employers recognize when needs exceed internal competencies and resource outside assistance.			
Competency requirements are established for progression in disciplines and roles that can impact process safety performance.			
Intentional competency development applies to all levels in the organization.			
Job descriptions identify process safety related expectations and required competency.			
The understanding of process hazards, associated barriers/safeguards, and approvals needed for bypassing barriers/safeguards is verified and documented for key positions (including process unit managers).			
Competency includes engineers implementing technical designs.			
Engineers have a demonstrated technical understanding of the hazards impacted by their engineering discipline.			
Engineering design and modification work is reviewed for risk as part of a formal MOC process.			
Engineers and technical specialists are trained in discipline standards and codes relevant to their role and responsibilities.			
Competency includes operators knowing their process and safe operating limits.			
Operator understanding of safe operating limits and steps to correct or avoid excursions is demonstrated.			
Operators are empowered and expected to shut down a process if the process cannot be maintained within the safe operating parameters.			
There are examples of operators or maintenance personnel stopping work when it has gone outside of preapproved plans.			

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Competency includes leaders visibly leading process safety.			
Managers verify that procedures and plans are developed with input from appropriate technical expertise.			
Managers provide access to technical expertise/resources and provide time for technical development.			

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Vibrant Management Systems

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All employees must clearly understand their role in managing process safety.			
All affected employees can describe the primary hazards at their site and the barriers/safeguards/programs that can minimize or prevent major accident hazards and risks. (e.g. – non-technical persons are aware of the scenarios and their responsibility to respond or evacuate; technical persons are aware of detailed safeguards.)			
A management system is documented and readily accessible to affected employees and is often utilized to access process safety content such as relevant process safety procedural elements, PHA's, recommendation tracking, process safety information, safe operating limits, critical safeguards, etc.			
Employees at all levels actively participate in process safety management system elements which are not directly related to regulatory compliance (management review, culture, standards, operational discipline, etc.).			
The management system is approved at the highest level in company and cascades to all other levels, as relevant.			
The management system defines how operations are conducted at the workplace and promotes safety in design, operations, and maintenance.			
The management system defines process safety-related activities that are conducted and tools used (e.g. equipment design, hazard identification, MOCs, incident investigation, and action item tracking).			
The management system has a mechanism to check and assure competency for and awareness of the tasks and responsibilities expected of process safety relevant roles.			
The project and MOC workflow procedures allow sufficient time and availability of technical experts to fully develop the design and address process safety hazards.			
The management system is agile and continually improved.			
Process safety programs have flexibility to allow for differences in complexity and potential impacts. (e.g., MOC and other programs are tiered such that the nature and complexity of the process are taken into consideration and allow for more /less thorough evaluation where appropriate)			
Incident investigations methods are appropriate for the incident severity (actual or potential).			

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There are metrics to evaluate management system effectiveness and identify improvement opportunities. (% employees trained, on time corrective action closure, program conformance, etc.)			
The management system is formally evaluated for effectiveness, including comparisons against newly established industry norms, based upon an established frequency or deliberate effort. (e.g. implementing LOPA as an accepted practice, API 754 Process Safety Performance Indicators, etc.)			

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