

PROCESS SAFETY MANAGEMENT CONCORDANCE TABLE

Comparison Of WCT HSE Management System (HSE MS) Documentation to the
Centre For Chemical Process Safety (CCPS) - Guidelines For Risk Based Process Safety

To promote process safety management excellence and continuous improvement throughout industry, CCPS created risk-based process safety (RBPS) as the framework for the next generation of process safety management. The framework is built on four pillars which are further divided into 20 elements. If an organization focuses its process safety efforts on these four pillars, then its process safety effectiveness should improve, the frequency and severity of incidents should decrease, and the long term safety, environmental, and business performance should improve. This risk-based approach also helps avoid gaps, inconsistencies, overwork, and underwork that can lead to system failure.

RBPS Pillar / Element Key Principles	Reference to Applicable Corporate Document for Compliance	Comment
Pillar 1: Commit to Process Safety – “The cornerstone of process safety excellence. A workforce that is convinced the organization fully supports safety as a core value will tend to do the right things, in the right ways, at the right times – even when no one else is looking.”		
1. Process Safety Culture - maintain a dependable practice; development and implement and sound culture, monitor and guide the culture (OSHA PSM 1)	<ul style="list-style-type: none"> • HSE MS, Element 2.2, Goals and Objectives • HSE MS, Element 2.3, Roles and Responsibilities • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS 3-Year Plans, Gap Analysis and Implementation Plans • HSE Manual, Section 1, Policy and Planning • HSE Manual, Section 2, Roles and Responsibilities • Annual Corporate Key Performance Indicators • Corporate Asset Integrity Programs 	Management is responsible for establishing and supporting HSE Management System. HSE implementation plans outline stated objectives and targets. Action plans include responsibilities and timeframes. Every person in the organization has a personal responsibility for HSE. Continued success of the Company’s HSE Management System means: <ul style="list-style-type: none"> • Senior management is visibly committed. • Frontline management leads the process and is actively involved. • Supervision is performance focused. • Workers are engaged and actively participating.
2. Compliance with Standards – ensure that a facility remains in conformance with applicable standards, codes, regulations, and laws (including Company policy, standards, and practices) (OSHA PSM 1)	<ul style="list-style-type: none"> • HSE MS, Introduction • HSE MS, Element 1.1, Management, Leadership and Policy • HSE MS, Element 2.2, Goals and Objectives • HSE MS, Element 2.3, Roles and Responsibilities • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS 3-Year Plans, Gap Analysis and Implementation Plans 	The HSE Management System provides a framework to ensure that health, safety and environmental issues are systematically identified, controlled, and monitored. The HSE MS is subject to periodic audit, ensuring business risk and regulatory needs / changes are addressed.

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<p>3. Process Safety Competency – implement management systems to (1) help proactively identify learning needs, (2) support efforts to learn or obtain critical knowledge, (3) maintain knowledge that helps promote risk-informed decision making, and (4) share information.</p> <p align="center">(OSHA PSM 6)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.1, Risk Management • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE MS, Element 3.6, Employee and Organizational Capability • HSE Manual, Section 9, Asset Integrity • Corporate Asset Integrity Programs 	<p>Company objectives include establishing a process to identify, evaluate and review training needs for each level and function within the organization and develop a training plan that addresses these needs. Ensure that documentation of HSE and competency training is maintained.</p> <p>The Company relies on a combination of skill-, rule-, and knowledge-based decision making to achieve its HSE performance goals. The Company's overall HSE Management System and the supporting programs have been designed in consideration of this model.</p>
<p>4. Workforce Involvement – involvement of workers who (1) are aware of hazards at workplace, (2) understand engineered controls and management systems provided to address hazards, (3) accept and strive to fulfill their roles and responsibilities in support of providing a safe work environment.</p> <p align="center">(OSHA PSM 5)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.3, Roles and Responsibilities • HSE MS, Element 2.1, Risk Management • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS 3-Year Plans, Gap Analysis and Implementation Plans • HSE Manual, Section 4, Risk Management • HSE Manual Section 3, Site Safety Management • Project HSE Assurance Plans • Environmental Protection Program and Plans 	<p>Every person in the organization has a personal responsibility for HSE. Supervisors, employees and contractors are responsible for:</p> <ul style="list-style-type: none"> • Understanding current HSE regulations, guidelines and corporate policies related to their area of responsibility. • Ensuring that all plans, practices, and procedures required to complete work in a safe and environmentally responsible manner, are available and communicated. • Participating in HSE and competency training as assigned
<p>5. Stakeholder Outreach – ensure that a facility retains a good relationship with stakeholders and establishes and maintains connections with all relevant industry, government, and public groups.</p> <p align="center">(OSHA PSM 5)</p>	<ul style="list-style-type: none"> • HSE MS, Element 4.1, Meetings and Communications • HSE Manual, Section 1, HSE Management • HSE Manual, Section 2, Roles and Responsibilities • HSE Manual, Section 3, Site Safety Management • HSE Manual, Section 5, Meetings and Communications • Project HSE Assurance Plans • Company Environmental Protection Plans 	<p>The Company commits to an open dialogue with employees, the communities in which it operates, and other relevant stakeholders with respect to HSE issues associated with Company operations.</p>

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Pillar 2: Understand Hazards and Risk – “The foundation of a risk-based approach. An organization can use this information to allocate limited resources in the most effective manner.”		
6. Process Knowledge Management – focuses on information that can easily be recorded in documents and supports any effort to apply the risk-based methods. Includes knowledge of design intent, operating methods, equipment ratings, and process hazards. (OSHA PSM 2)	<ul style="list-style-type: none"> • HSE MS, Element 4.5, Records Management • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE Manual, Section 1, HSE Management • HSE Manual, Section 9, Asset Integrity • HSE Manual, Section 15, Records Management • Environmental Protection Plan, Section 1 • Company Asset Integrity Manuals 	Information systems in place to identify, collect, protect, store, retrieve, route and dispose of HSE documentation to assure operational integrity and regulatory compliance are in place. The Company’s Management of Change (MOC) process is used to recognize, document, review and approve permanent or temporary physical and operational changes, before they are made in order to ensure that the ability to manage pipeline and pressure equipment integrity is not compromised by such changes.
7. Hazard Identification and Risk Analysis – formal, documented review process of material, equipment, location with respect to people, sensitive environments and other vulnerable assets (new and existing facilities→ Life-Cycle). (OSHA PSM 3)	<ul style="list-style-type: none"> • HSE MS, Element 2.1, Risk Management • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE Manual, Section 4, Hazard-Risk Management • HSE Manual Section 3, Site Safety Management • Project HSE Assurance Plans • Company Asset Integrity Manuals • Emergency Response Plans / CEPA E2 Risk Assessments, as required • Company Environmental Protection Plans 	Management is responsible for supporting risk management programs and decisions. Risks are identified, consistently evaluated and mitigated using appropriate, reasonable and practical risk management tools. Risks include potential hazards, operational problems or non-compliance to: regulations, operating standards, or safe work practices. Changes are recognized, documented, formally reviewed and approved prior to their implementation and the continuation of work as required to reduce business and operation risks.
Pillar 3: Manage Risk – “The ongoing execution of RBPS tasks. Organizations must (1) operate and maintain the processes that pose the risk, (2) keep changes to those processes within risk tolerances, and (3) prepare for, respond to, and manage incidents that do occur.”		
8. Operating Procedures – establish requirements for all operating procedures, assign responsibilities for development, use, and review, and address document control. (OSHA PSM 4)	<ul style="list-style-type: none"> • HSE MS, Element 2.1, Risk Management • HSE MS, Element 3.1, Program Implementation • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE Manual, Section 4, Hazard-Risk Management • HSE Manual, Section 3, Site Safety Management • HSE Manual, Section 9, Asset Integrity • HSE Manual, Section 12, Work Practices and Procedures • Company Asset Integrity Manuals 	Work plans, practices and procedures are developed and implemented, as required, for the work activities being conducted. They outline standard operating and maintenance practices and procedures and hazards.

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<p>9. Safe Work Practices – establish subordinate procedures that govern specific activities, including responsibilities.</p> <p>(OSHA PSM 4)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.1, Risk Management • HSE MS, Element 3.1, Program Implementation • HSE Manual, Section 4, Hazard-Risk Management • HSE Manual, Section 3, Site Safety Management • HSE Manual, Section 12, Work Practices and Procedures 	<p>Site-specific procedures are established and defined methods of performing site-specific operations and address equipment and hazards not included in operating and maintenance procedures.</p>
<p>10. Asset Integrity and Reliability – defines standards or technical bases used to develop the inspection, testing and preventative maintenance of equipment, management systems in place to ensure that (1) equipment deficiencies are report and managed, (2) equipment is fabricated, installed and maintained in accordance with specifications and certifications. Also, defines roles and responsibilities and the standards for training and procedures to support this element.</p> <p>(OSHA PSM 9)</p>	<ul style="list-style-type: none"> • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE Manual, Section 9, Asset Integrity • HSE Manual, Section 4, Risk Management • Company Asset Integrity Manuals 	<p>The Company manages asset risk by providing an effective integrity management plan for designing, constructing, maintaining, inspecting and operating Company pipeline systems and facilities to reduce loss, ensure worker safety and protect the environment through training and inspection.</p> <p>These plans define the responsibilities and qualifications required for all personnel involved in the management of programs and inspection of production facilities.</p>
<p>11. Contractor Management – systems to (1) consider contractor safety-related qualifications, (2) ensure contractors are made aware of facility and operational hazards and potential hazards introduced by contractor work activities, and (3) maintain high standards of safety performance during the conduct of contracted services.</p> <p>(OSHA PSM 7)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.3, Roles and Responsibilities • HSE Manual, Section 2, Roles and Responsibilities • HSE Manual, Section 6, Qualifications, Orientations and Training • HSE Manual, Section 14, Contractor Management 	<p>The Company selects, hires, and assesses contractor personnel to ensure that the contracted workforce is composed of competent, capable workers equipped with the skills required to meet the HSE requirements for the services being contracted.</p> <p>Contractors performing work for the Company are expected to perform activities in a safe and environmentally responsible manner, in accordance with industry and specific craftsman trade rules, regulations and standard industry operating procedures.</p>

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<p>12. Training and Performance Assurance –includes education in specific operations procedures, maintenance, safe work, and emergency planning and response, as well as overall process and its risks. Work activities commonly categorized as skill-based, rule-based or knowledge based.</p> <p align="center">(OSHA PSM 6)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.3, Roles & Responsibilities • HSE MS, Element 3.6, Employee & Organizational Capability • HSE Manual, Site Safety Management • HSE Manual, Section 6, Qualifications, Orientations & Training • HSE Manual, Section 9, Basic Safety • HSE Manual, Section 14, Contractor Management • HSE Manual, Section 13, Work Practices and Procedures • Environmental Protection Program, Section 6 • Worker Competency / Training System (CMDs) • Company Asset Integrity Manuals 	<p>The Company selects, hires, trains and assesses its personnel to ensure that the workforce is composed of competent, capable workers equipped with the skills required to meet the HSE requirements for their position.</p>
<p>13. Management of Change – establish formal authorization (documented) and communication process (procedures, documentation, and training) for all changes that are not replacements-in-kind. Specifically changes to facility design, activities, operations, organization or policies that (1) introduce new hazards, or (2) increases risk of existing hazards.</p> <p align="center">(OSHA PSM 11)</p>	<ul style="list-style-type: none"> • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE MS, Element 4.5, Records Management • HSE Manual, Section 4, Risk Management • HSE Manual, Section 9, Asset Integrity • HSE Manual, Section 15, Records Management • Company Asset Integrity Manuals 	<p>The Company’s Management of Change (MOC) process is used to recognize, document, review and approve permanent or temporary physical and operational changes, before they are made in order to ensure that the ability to manage equipment integrity is not compromised by such changes.</p> <p>Risks are identified, consistently evaluated and mitigated using appropriate, reasonable and practical risk management tools. Risks include potential hazards, operational problems or non-compliance to: regulations, operating standards, or safe work practices.</p>
<p>14. Operational Readiness – ensure that processes that have been shut down are safe to restart. Includes practices for pre-startup reviews of (1) new processes, (b) processes that have been shut down for modification, (3) process that have been administratively shut down for other reasons.</p> <p align="center">(OSHA PSM 8)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.1, Risk Management • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE MS Element 4.1, Meetings and Communications • HSE Manual, Section 4, Hazard-Risk Management • HSE Manual, Section 3, Site Safety Management • HSE Manual, Section 9, Asset Integrity • Project HSE Assurance Plans 	<p>The Company’s Management of Change (MOC) process is used to recognize, document, review and approve permanent or temporary physical and operational changes, before they are made to ensure the ability to manage equipment integrity is not compromised by such changes.</p> <p>The Company PSM process includes a requirement to conduct Operational Readiness / Pre-Startup Safety Reviews (PSSR) as part of commissioning and start-up activities. The primary purpose is to ensure what was designed and planned was carried out in the field before facility startup. The emphasis is on the design or significant design changes, calling attention to the safety and operability of the facility.</p>

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<p>15. Conduct of Operations – establish observable standards of behavior and accountability. (OSHA PSM 10)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.2, Goals and Objectives • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS 3-Year Plans, Gap Analysis and Implementation Plans • HSE Manual, Section 1, Policy and Planning • HSE Manual, Section 2, Roles and Responsibilities 	<p>Every employee and contractor shares the responsibility and is accountable for the safety and environmental performance of the Company. The HSE Management System is based on the principles of the Internal Responsibility & Accountability System (IRS).</p> <p>Management is responsible for establishing and supporting clear HSE goals and objectives, roles and responsibilities and supporting risk management programs and decisions.</p> <p>HSE implementation plans outline stated objectives and targets. The action plans will include responsibilities and timeframes.</p> <p>Continually improve performance by having clear roles, responsibilities and accountabilities for Company personnel and contractors.</p>
<p>16. Emergency Management – Plan for emergencies. Define risks, roles and responsibilities, scope of response activities, train personnel and provide necessary equipment. (OSHA PSM 13)</p>	<ul style="list-style-type: none"> • HS MS, Element 2.1, Risk Management • HS MS Element 3.3, Emergency Management • HSE Manual, Section 7, Emergency Preparedness • Project HSE Assurance Plans • Company Environmental Protection Plans 	<p>The Company ensures proper planning and preparation to ensure activation of response action plans and mobilization of response teams and resources in a safe and effective manner, as well as coordinate activities with regulatory agencies; thereby reducing the overall impact of the emergency.</p>
<p>Pillar 4: Learn from Experience – <i>“The opportunities for improvement. Metrics provide direct feedback on the workings of RBPS systems, and leading indicators provide early warning signals of ineffective process safety results. When an element’s performance is unacceptable, organizations must use their mistakes – and those of others – as motivation for action.”</i></p>		
<p>17. Incident Investigation – establish an incident reporting and investigation process and competency. (OSHA PSM 12)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.1, Risk Management • HSE MS, Element 4.2, Incident Management • HSE Manual, Section 4, Risk Management • HSE Manual, Section 8, Incident Reporting and Investigation • Company Environmental Protection Plans 	<p>Incidents and near misses will be reported, analyzed and investigated (as required). Investigation findings and learnings will be documented and communicated to minimize future occurrences. Responsibilities for any corrective actions are identified and timelines and personnel are assigned to confirm that actions items are completed</p>

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<p>18. Measurement and Metrics – a means for near-real-time monitoring of performance and efficiency of the process safety management system.</p> <p>(OSHA PSM 14)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.2, Goals and Objectives • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS 3-Year Plans, Gap Analysis and Implementation Plans • HSE Manual, Section 1, Policy and Planning • HSE Manual, Section 2, Roles and Responsibilities • Annual Corporate Key Performance Indicators 	<p>A system is in place to monitor key leading and lagging performance indicators, goals and objectives of the corporation and each operating region and uses them to track and communicate performance.</p> <p>Workplace behavior programs are in place to measure conformance with practices and procedures.</p> <p>External benchmarking is conducted to ensure that systems and programs are current and effective.</p>
<p>19. Auditing – establish practice including, (1) scope and objective of types of audits, (2) frequency and depth of scrutiny, (3) organizational responsibilities, (4) resolution of audit findings and recommendations, (5) documentation requirements.</p> <p>(OSHA PSM 14)</p>	<ul style="list-style-type: none"> • HSE MS, Element 4.3, Audits and Assessments • HSE MS, Element 4.4, Performance Monitoring and Reporting • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS, Element 3.4, Process Safety and Integrity Management • HSE Manual, Section 5, Meetings & Communication • HSE Manual, Section 9, Asset Integrity • Environmental Protection Plans • Company Asset Integrity Manuals 	<p>The Company conducts audits and assessments to verify compliance with HSE standards and the effectiveness of the HSE Management System.</p>
<p>20. Management Review and Continuous Improvement – ensure that required RBPS activities produce the desired results over the life of the facility, by establishing a management review program, conducting review activities, and monitoring organizational performance.</p> <p>(OSHA PSM 14)</p>	<ul style="list-style-type: none"> • HSE MS, Element 2.2, Goals and Objectives • HSE MS, Element 2.3, Roles and Responsibilities • HSE MS, Element 5.0, Review and Continual Improvement • HSE MS 3-Year Plans, Gap Analysis and Implementation Plans • Company Environmental Protection Program and Environmental Protection Plans • Annual Corporate Key Performance Indicators • HSE Manual, Section 1, HSE Management – Policy and Planning and Section 6, Qualifications, Orientations and Training 	<p>Management is responsible for establishing and supporting clear HSE goals and objectives, roles and responsibilities and supporting risk management programs and decisions.</p> <p>HSE implementation plans outline stated objectives and targets. The action plans include responsibilities and timeframes.</p> <p>Senior management performs regular strategic reviews of the HSE management system and the Company's performance to confirm its suitability and effectiveness.</p>