

Life-saving Rules and Process Safety Fundamentals Standard

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REVISION CHANGE NOTICES

Rev	Date	Location of Change	Brief Description of Change
1	25 March 2022	Throughout.	This document issued by Harbour Energy as part of the BMS Review Project/OMS/BMS Integration Project. Legacy Document Number(s): CHRY-UKO-HSEQ-PROC-0584, CP-CP-PMO-HS-ZZ-ST-0021.

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1.0 PURPOSE

This Standard defines Harbour Energy's expectations regarding Life-saving Rules (LSRs) and Process Safety Fundamentals (PSFs). The LSRs and PSFs were adapted from International Association of Oil & Gas Producers (IOGP) Reports 459 and 638, respectively, as they are widely recognised as industry best practice.

Conformance with this Standard ensures that a consistent approach is applied to preventing the most common causes of serious injuries and fatalities in the industry. The LSRs have a strong focus on personal safety and overlap into process safety; the PSFs solely focus on process safety, but elements of them can be applied to managing additional Health, Safety and Environment (HSE) risks.

2.0 SCOPE

The LSRs and PSFs defined in this Standard are applied:

- At Harbour Energy operated assets
- At Harbour Energy controlled locations
- While travelling on Harbour Energy business

It is recommended that LSRs and PSFs are applied at non-operated assets if appropriate and agreed with the operator.

3.0 GLOSSARY OF TERMS

3.1 Abbreviations

COMOPS	Combined Operations
HSE	Health, Safety and Environment
HSES	Health, Safety, Environment and Security
IOGP	International Association of Oil & Gas Producers
LSR	Life-saving Rule
MAH	Major Accident Hazard
MOC	Management of Change
P&ID	Piping and Instrumentation Diagram
PSF	Process Safety Fundamental
SECE	Safety and Environmental Critical Element
SIMOPS	Simultaneous Operations

3.2 Definitions

Process Safety

The prevention of events with the potential to release hazardous materials or energy, and the mitigating controls required to minimise the consequence of such releases if they do occur. Such releases can ultimately result in fire, explosion, serious injuries, environmental impact and property damage.

A disciplined framework is required for managing the integrity of hazardous operating systems and processes by applying good design principles, engineering, operating and maintenance practices. Leadership and competence are required to implement process safety management.

In Harbour Energy, process safety management is applied to all Major Accident Hazards (MAHs) and is not limited to those hazards associated with releases of process fluids (i.e. losses of primary containment).

4.0 ROLES AND RESPONSIBILITIES

4.1 Line Supervision and Management

Line Supervision and Management are responsible for:

- Leading by personal example by visibly following the LSRs and PSFs
- Ensuring their teams remain engaged with the LSRs and PSFs
- Recognising positive use of the LSRs and PSFs, and addressing poor use of them
- Ensuring that personnel in their organisation and contractors working at Harbour Energy sites receive awareness and detailed training on the LSRs and PSFs, appropriate to the roles and tasks they are expected to perform
- Ensuring that related Procedures are updated to include the LSRs and PSFs at relevant stages in the process

4.2 All Employees and Contractors

All employees and contractors are responsible for:

- Ensuring they are (as a minimum) trained in, understand and apply the LSRs and PSFs relevant to their work activities
- Understanding they are empowered to stop work when they believe the LSRs or PSFs cannot be followed, or the work can be done in a safer way

4.3 HSES Group

The Health, Safety, Environment and Security (HSES) Group is responsible for promoting the LSRs and PSFs by:

- Providing presentation materials, both online and in print
- Providing awareness and training programmes
- Detailing the LSRs and PSFs in the HSE Expectations booklet
- Facilitating assurance and data analytics activities, including for field verification

5.0 STANDARD EXPECTATIONS

The LSR/PSF text and icons presented in this Standard shall not be modified except for the purpose of translation to other languages.

5.1 Life-saving Rules

5.1.1 General Requirements

Compliance with LSRs is expected from everyone working at Harbour Energy assets during all related activities.

Work shall not commence until all individuals involved are aware of and can confirm they can follow the LSRs that are relevant to that work.

5.1.2 Rules



Obtain authorisation before overriding or disabling safety-controls

- I understand and use safety-critical equipment and procedures which apply to my task
- I obtain authorisation before:
 - Disabling or overriding safety equipment
 - Deviating from procedures
 - Crossing a barrier

**Obtain authorisation before entering a confined space**

- I confirm energy sources are isolated
- I confirm the atmosphere has been tested and is monitored
- I check and use my breathing apparatus when required
- I confirm there is an attendant standing by
- I confirm a rescue plan is in place
- I obtain authorisation to enter

**Follow safe driving rules**

- I always wear a seatbelt
- I do not exceed the speed limit, and reduce my speed for road conditions
- I do not use phones or operate devices while driving
- I am fit, rested and fully alert while driving
- I follow journey management requirements

**Verify isolation and zero energy before work begins**

- I have identified all energy sources
- I confirm that hazardous energy sources have been isolated, locked, and tagged
- I have checked there is zero energy and tested for residual or stored energy

**Control flammables and ignition sources**

- I identify and control ignition sources
- Before starting any hot work:
 - I confirm flammable material has been removed or isolated
 - I obtain authorisation
- Before starting hot work in a hazardous area, I confirm:
 - A gas test has been completed
 - Gas will be monitored continually



Keep yourself and others out of the line of fire

- I position myself to avoid:
 - Moving objects
 - Vehicles
 - Pressure releases
 - Dropped objects
- I establish and obey barriers and exclusion zones
- I take action to secure loose objects and report potential dropped objects



Plan lifting operations and control the area

- I confirm that the equipment and load have been inspected and are fit for purpose
- I only operate equipment that I am qualified to use
- I establish and obey barriers and exclusion zones
- I never walk under a suspended load



Work with a valid permit when required

- I have confirmed if a permit is required
- I am authorised to perform the work
- I understand the permit
- I have confirmed that hazards are controlled, and it is safe to start
- I stop and reassess if conditions change



Protect yourself against a fall when working at height

- I inspect my fall protection equipment before use
- I secure tools and work materials to prevent dropped objects
- I tie off 100% to approved anchor points while outside a protected area

5.2 Process Safety Fundamentals

5.2.1 General Requirements

Compliance with PSFs is mandatory. PSFs promote behaviours conducive to improved process safety performance for all MAH-related activities and situations.

5.2.2 Fundamentals

PROCESS SAFETY FUNDAMENTALS



We respect hazards

- We improve our understanding of process safety/major accident hazards at our locations and our roles in controlling them through familiarity with our Safety Cases
- We are vigilant about the potential impacts of uncontrolled process safety hazards
- We discuss process safety hazards before starting a task
- We bring forward process safety hazards to be included in activity risk assessments
- We identify and address hazards arising from SIMOPS/COMOPS
- We perform thorough crew/shift handover and communicate status and risks clearly and fully



We apply procedures

- We use operating and maintenance procedures (for asset, wells/drilling, subsea, aviation and marine operations), even if we are familiar with the task
- We discuss the key steps within a critical procedure before starting it
- We pause before key steps and check readiness to progress
- We stop, inform supervision and avoid workarounds if procedures are missing, unclear, unsafe, or cannot be followed
- We take time to become familiar with, and practice, emergency procedures
- We ensure we have sufficient competent personnel to safely operate, maintain and respond to emergencies in accordance with our procedures



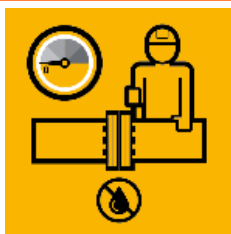
We sustain barriers

- We discuss the purpose of hardware and human barriers (Plant, People and Process) at our location
- We evaluate how our tasks could impact process safety barriers
- We speak up when barriers don't feel adequate
- We perform our roles in inspecting, testing and maintaining barrier health and alert supervision to our concerns
- We use an approval process for operations with degraded barriers



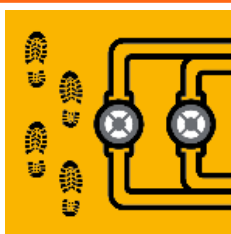
We stay within operating limits

- We discuss and use the approved operating limits for our location
- We escalate where we cannot work within operating limits
- We alert supervision if an alarm response action is unclear or the time to respond is inadequate
- We obtain formal approval before changing operating limits
- We confirm that potential for overpressure from temporary pressure sources has been addressed



We maintain safe isolation

- We use isolation plans for the specific task, based on up-to-date information
- We raise isolation concerns before the task starts and challenge when isolation plans cannot be executed
- We check for residual pressure or process material before breaking containment
- We monitor the integrity of isolations regularly and stop to reassess when change could affect an isolation integrity
- We confirm leak-tightness before, during and after reinstating equipment



We walk the line

- We use up-to-date documentation (e.g. P&IDs) that accurately reflect installed systems and equipment
- We physically confirm the system is ready for the intended activity (e.g. valve positions, line up of relief devices, etc.)
- We alert supervision to identified documentation and readiness issues before operation
- We continuously attend manual open draining, bunkering and critical transfer operations



We control ignition sources

- We identify, eliminate or control the full range of potential ignition sources during task risk assessments and during job preparation and execution
- We minimise and challenge ignition sources even in 'non-hazardous' areas
- We eliminate ignition sources during breaking containment and start-up and shutdown operations



We recognise change

- We look for and speak up about change
- We discuss changes and involve others to identify the need for Management of Change (MOC)
- We review the MOC process for guidance on what triggers an MOC
- We discuss and seek advice on change that occurs gradually over time
- We manage temporary equipment



We stop if the unexpected occurs

- We discuss the work plan and what signals would tell us it is proceeding as expected
- We pause and ask questions when signals and conditions are not as expected
- We stop and alert supervision if the activity is not proceeding as expected



We watch for weak signals

- We proactively look for indicators, symptoms or signals that suggest future problems
- We speak up about potential issues even if we are not sure they are important
- We persistently explore the causes of changing indicators or unusual situations
- We report incidents (including near misses); investigate, share and learn from them

5.3 Using LSRs and PSFs

The LSRs and PSFs can be used throughout the lifecycle of an activity, from initial planning to final execution and post-job reviews. Relevant elements of the LSRs and PSFs must be identified and checked immediately before commencing activities.

The following example questions relating to the LSRs and PSFs should be raised at the opportunities identified.



Toolbox talks and safety meetings

- Can we learn from incidents that involved an LSR/PSF not being followed?



Pre-job planning

- Are we doing any work today involving LSRs/PSFs?
- How can we follow the LSR/PSF requirements from start to finish?
- What controls need to be in place to manage the risks?
- Is everything in place and in good working condition?
- What Safety and Environmental Critical Element (SECE) plant barriers could be affected by the job we are planning?
- What needs to be communicated and to whom?
- Does anything need to be exercised/tested before we start the job?



Pre-task/dynamic risk assessment

- Have we done all the LSR/PSF actions?
- Is everything as we discussed in the pre-job planning?
- Are there any line of fire hazards or ignition sources we didn't identify?
- Are we making sure we re-assess the risk before starting and during the job (e.g. between task steps)?



Post-job reviews

- Did we take all the actions associated with the LSRs/PSFs?
- What went well? What didn't go well?
- Is there anything to note for the next time we perform this task or work in this area?



Observations, walkabouts and verification

- Do you see anyone performing work where an LSR/PSF is relevant?
- Are they following the requirements?
 - Yes? Great, recognise it!
 - No? Intervene!
- Is compliance with and application of the LSR and PSFs assured through the Field Verification process?



Intervention

- Intervene or STOP THE WORK if an LSR/PSF is not being followed
- DO NOT START WORK if the requirements cannot be met – ask for help

6.0 REFERENCES

Industry Best Practice

- IOGP Life-Saving Rules webpage – <https://www.iogp.org/life-savingrules/>
- IOGP Process Safety Fundamentals webpage – <https://www.iogp.org/oil-and-gas-safety/process-safety/fundamentals/>
- IOGP Report 459, IOGP Life-saving Rules, August 2018
- IOGP Report 638, IOGP Process Safety Fundamentals, October 2020