Introduction to IOGP & the work of the IOGP Safety Directorate

IOGP

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PREVENTING PROCESS SAFETY EVENTS WITH THE IOGP PROCESS SAFETY FUNDAMENTALS

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2025

IOGP: Leading Industry Collaboration

More than 2,500 experts from 97 member companies delivering technical content and advocacy

Safety	Environment	Engineering	Energy Transition	Europe
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Wells	Environment	Geomatics	Low Carbon Operational Efficiency	
Health	Metocean	Standards		
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Americas

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MEA

International Association of Oil & Gas Producers

IOGP Safety Directorate

The objective of the Safety Directorate is to eliminate fatalities and permanent impairments and catastrophic process safety events in the oil and gas industry.

IOGP Safety Directorate Focus Areas

Development and adoption of IOGP Safety Recommended Practices

Publish safety data and enhance data to include leading indicators

Increase collaboration and engagement between IOGP and selected partners to maximise effectiveness

Co-ordinate activities designed to improve safety culture, including human performance initiatives

IOGP Safety Directorate Key Work Areas

Land Transport

Data Reporting for Benchmarking and Learning

Process Safety

Personal / Operational Safety

Aviation

Human Performance

Geophysical HSE

Development and adoption of IOGP Safety Recommended Practices

Introduction to the IOGP Process Safety Fundamentals

IOGP Process Safety Fundamentals Expert Group

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What are the Process Safety Fundamentals?

PROCESS SAFETY FUNDAMENTALS

Key actions to reduce, and ultimately eliminate, fatal and high severity Process Safety Events (PSE)

How were the PSFs developed?

PROCESS SAFETY FUNDAMENTALS

IOGP wanted to provide workers in the industry with actions they can take to protect themselves and their colleagues, no matter the worksite

Data over eighteen years (2007-2024) indicates that 175 people lost their lives in 86 Process Safety Events

The fundamentals were developed to be data-driven to reduce, if not eliminate, fatal and high severity PSEs

PSFs were designed based on Fatal and High Severity PSEs (latest data analysis 2007-2024)

IOGP created 10 Fundamentals with simple icons and clear actions for individuals

PSFs were tested with IOGP Member Companies workforce representatives and Human Performance experts

175 people might still be alive if PSFs had been implemented

PROCESS SAFETY FUNDAMENTALS

Figure 1 from PSF Report 638 shows the proportion of fatal PSEs that can be linked to at least one of the 10 IOGP PSFs.

Of the incidents assessed, 94% of incidents could be linked to at least one of the 10 IOGP PSFs.

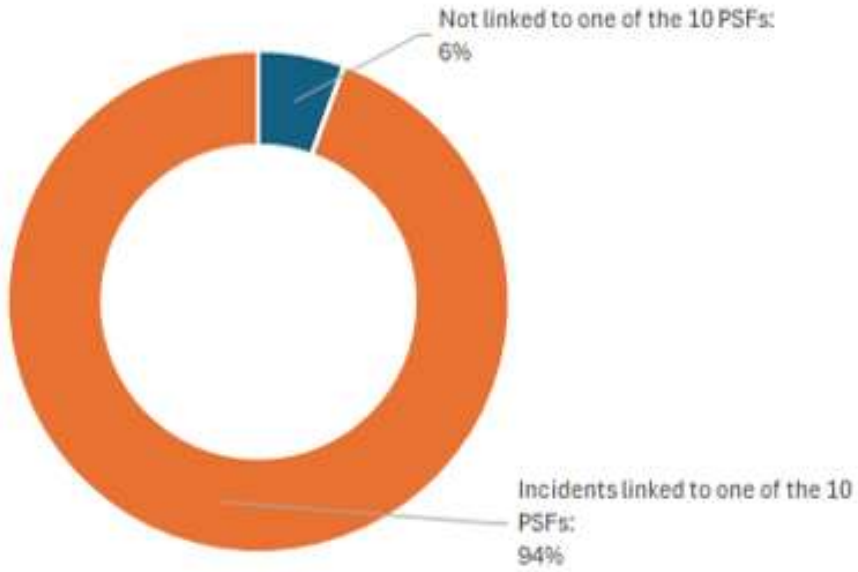

Figure 1: Proportion of fatal PSEs linked to one of the PSF, 2007-2024

The Process Safety Fundamentals

PROCESS SAFETY FUNDAMENTALS

Maintain safe isolation | Walk the line | Apply procedures | Sustain barriers | Control ignition sources

Recognize change | Respect hazards | Stay within operating limits | Stop if the unexpected occurs | Watch for weak signals

Process Safety Fundamentals mapping to fatal Process Safety Events

PROCESS SAFETY FUNDAMENTALS

Figure 2 shows how the fatal PSEs were linked to each of the PSFs.

Note: In the initial analysis it was identified that some incidents could be linked to more than one of the PSFs. For the purposes of clarity, the chart shows the PSF that was considered the primary PSF involved in the incident.

The PSF linked to the largest number of fatal incidents are:

- We maintain safe isolation
- We recognise change
- We respect hazards
- We control ignition sources
- We apply procedures

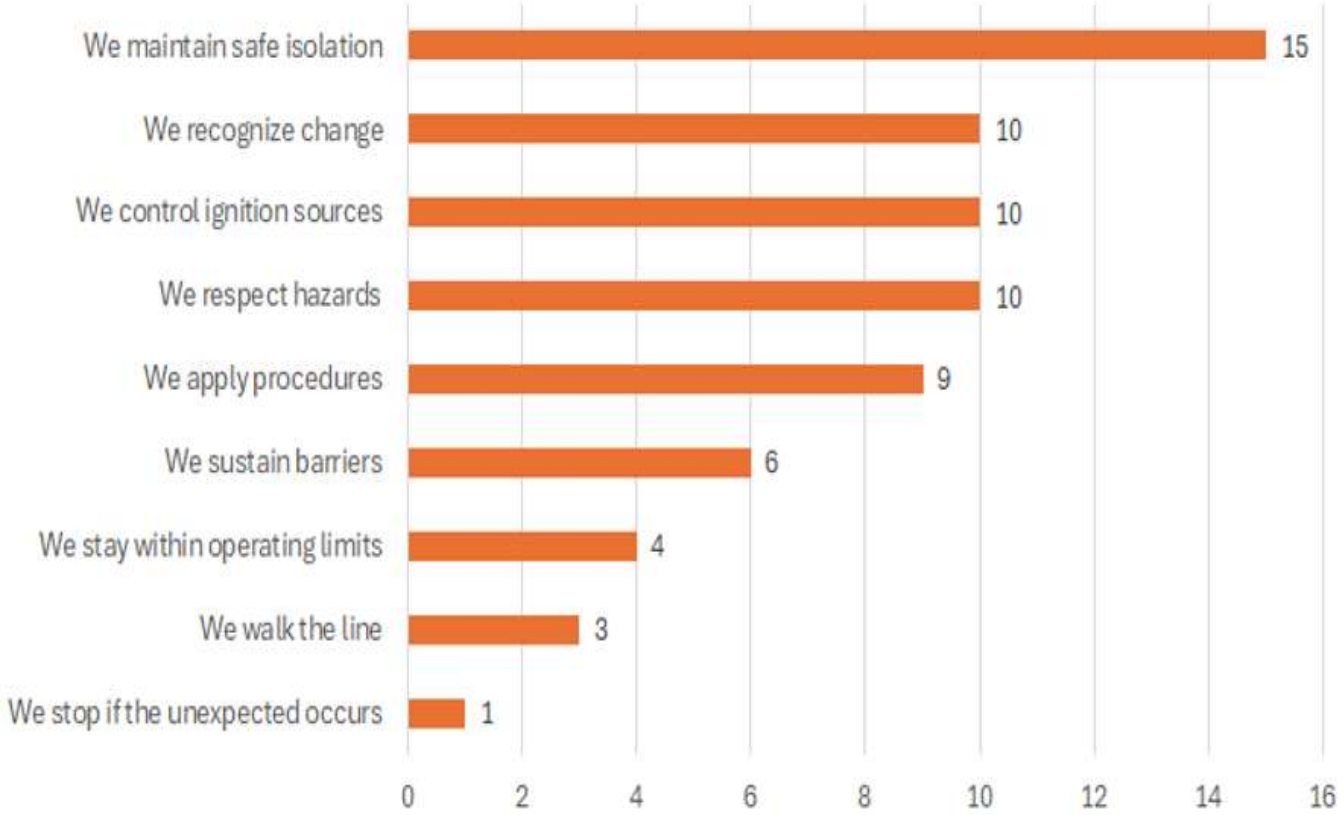

Figure 2: Number of fatal PSE and the related primary PSF, 2007-2024

WE APPLY PROCEDURES

PROCESS SAFETY FUNDAMENTALS

- We use operating and maintenance procedures, 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 APPLY PROCEDURES – Guidance Card

PROCESS SAFETY FUNDAMENTALS

PROCESS SAFETY FUNDAMENTALS

WE APPLY PROCEDURES

Many of the operations or activities we perform on our facilities are complex and/or have the potential to release hazardous materials if they are not performed correctly. Step by step procedures are developed to perform these tasks safely and prevent unwanted or hazardous situations. It is good practice to use procedures on site and use job aids (e.g., sign off) to confirm that key steps have been completed in the correct sequence as the activity proceeds. Each company or asset may want to consider which of its activities or tasks are "critical" and require the higher level of assurance that "sign off" for each step of a procedure gives to the process. Typically, activities such as startup/shutdown of a facility, or particularly hazardous activities like pigging, are considered "critical" procedures.

Before starting a procedure, it is good practice to discuss the task ahead and how it is expected to proceed. The team involved can discuss the key steps, particularly those which are irreversible, and what will be expected at those stages to confirm readiness to proceed further.

In most cases existing procedures will be accurate, however if you identify issues with the quality or completeness of the procedures such as a lack of clarity on a task or missing/incorrect data, then this should be raised so they can be addressed as part of your MOC process.

It is easy to become complacent about an activity that has been performed many times before without hazardous or unwanted outcomes. However, no matter how experienced we are, it is easy to make a mistake, and therefore it is important to apply the procedures thoroughly, every time.

If you cannot complete or follow the procedure as it is currently written or you think there is an issue with the procedure, halt the activity and raise the issue with your supervisor. If you think there is a better way of performing an activity/task discuss it with your supervisor and raise a formal change request.

Sometimes an activity or operation is not completed in one shift, and it therefore is important to ensure there is an effective shift handover process so that the new shift has accurate knowledge of the status of operations and any issues they should be aware of.

If a hazardous situation occurs, it is also important to understand and apply emergency response procedures. These need to be readily usable in more stressful situations and regular practice drills help to reinforce understanding and familiarity.

Tips for Leaders and Managers:

Verify procedures are up-to-date, accurate, and effective, and they reflect the actual task or activity being performed.

Procedures should be easy to use and readily available to those who need them.

Confirm human factors are adequately considered in procedure design.

Plan that personnel have sufficient time to become familiar with the plant, its equipment, and its procedures.

Ensure that any issues raised are addressed and that procedures incorporate all relevant learnings.

In the field, ask the frontline:

- Are your procedures adequate and easily available? (Provide feedback to the procedure owner or responsible discipline.)
- Are there any workarounds used? Why are they needed? What is the underlying issue? (Discuss how procedures can be updated to reflect actual work practices.)
- Are you familiar with the sites Emergency Response procedures? What is your role?

For more information on Process Safety Fundamentals, please visit www.iogp.org/PSF

Tips for Leaders and Managers

- Verify that procedures are up-to-date, effective, and easy to use.
- Follow up if concerns are raised about a procedure.
- Promote familiarisation with the plant, its equipment, and its procedures.
- Discuss Emergency Response procedures with frontline staff.

Additional guidance

- US Chemical Safety Board: Fire in Baton Refuge
- Safer Together videos and other tools
- Center for Chemical Process Safety (CCPS). Guidelines for Writing Effective Operating and Maintenance Procedures.

How can the PSFs be used?

PROCESS SAFETY FUNDAMENTALS

Toolbox talks & Safety meetings

- Can we learn from incidents that involved a PSF not being followed?

Pre-job planning

- How are the PSF applicable to the work we are doing today?
- What do we need to do to follow the PSF?
- What needs to be in place?
- Is everything in place, and in good working condition?

Last minute risk assessment

- Have I done all the PSF actions relevant before the job?
- Is everything as we discussed in the pre-job planning?
- Are there any Line of Fire hazards or ignition sources we didn't identify?

Post-job reviews

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

Observations & walkabouts

- Do you see anyone performing work where a PSF is relevant?
- Are they following it?
- Yes? Great, recognise it!
- No? Intervene!
- If someone brings up a PSF dilemma, thank them and show them you will take it seriously.

Intervention

- Intervene or stop the work if a PSF is not being followed

Implementation Resources Available at www.iogp.org/psf

- Icons
- Slide Deck
- Poster
- Launch Cards
- Translated PSF
- Industry related resources

PROCESS SAFETY FUNDAMENTALS

Azeri	**French**	Polish
Catalan	German	Portuguese (Brazil)
Chinese (HK)	Indonesian	Romanian
Chinese (simplified)	Italian	Russian
Danish	Japanese	Spanish
Dutch	Kazakh	Thai
	Malay	Vietnamese
	Norwegian	

Implementation Resources – IOGP Member Company Videos

PROCESS SAFETY FUNDAMENTALS

We Walk the Line

Inpex

We Sustain Barriers

Premier Oil

We Maintain Safe Isolation

Harbour Energy

Explaining Barriers

bp

Visit www.iogp.org/psf

Download Process Safety Fundamentals

Thank you.

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