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LETTER FROM THE SENIOR DIRECTOR

Dear Colleagues,

The U.S. offshore oil and natural gas industry continues to demonstrate a steadfast commitment to safety amid a changing operating environment. It is a privilege to serve as the new Senior Director of the Center for Offshore Safety (COS) and Safety Programs at the American Petroleum Institute (API). I look forward to building on the strong foundation established under the leadership of Charlie Williams and Russell Holmes and advancing COS's role as a trusted safety resource for the offshore industry.



My path to COS has been shaped by direct experience with offshore risk. I worked at BP following the 2010 Macondo/Deepwater Horizon incident in the U.S. Outer Continental Shelf (OCS), a defining moment for our industry. As regulations evolved, I was part of the team that conducted BP's first audit of its Safety and Environmental Management System (SEMS). That work, combined with my experience managing safety systems across other API segments, gave me a lasting understanding that rigorous safety management is not simply a requirement – it is essential. I bring that perspective to COS and look forward to helping the offshore industry strengthen safety management and SEMS performance.

By the numbers

In 2025, COS member operators reported 43.2 million work hours across their offshore operations. As in previous years, every COS member contributed safety data to this report, demonstrating a shared commitment to transparency, knowledge sharing, and safer operations.

We are proud to report several significant safety milestones in 2025:

- **Zero Fatalities:** No incidents resulted in a fatality — for the fourth consecutive year.
- **Zero Well Control Incidents:** No Level 1 or Level 2 Well Control Incidents were reported — for the fifth consecutive year.
- **Zero Major Oil Spills:** No oil spills greater than 238 barrels (10,000 gallons) — for the fifth consecutive year.

Since COS was founded in 2011, the U.S. OCS industry has navigated economic downturns, a global pandemic, shifting policy environments, and sustained merger and acquisition activity. Through it all, the focus on safe operations has endured. Each data point in this report represents more than a number. It reflects the people who work offshore every day to provide the energy and energy security our nation depends on. Their safety is our mission. That is why COS subcommittees are open to all operators and contractors, not only COS members.

I invite every company involved in U.S. offshore operations to engage with COS, participate in our events and communities of practice, and help shape the future of offshore safety. Follow us on LinkedIn and visit centerforoffshoresafety.org to learn more.

Sincerely,

COLIN M. FRAZIER

Senior Director, [Center for Offshore Safety](https://centerforoffshoresafety.org) and Safety Programs, API

LETTER FROM THE CHAIR

Dear Colleagues,

I want to begin by recognizing Kim Forgie, who led COS as Chair through 2025 before retiring from Occidental (Oxy) at the end of the year. Kim was a dedicated champion for safety across the U.S. Outer Continental Shelf, and the progress reflected in this report is built on the direction he helped establish. It is an honor to succeed Kim as Chair of COS.



Offshore safety has shaped my entire career, from my time as a U.S. Merchant Marine Academy cadet, through three decades in offshore drilling, including the past 12 years as Vice President of QHSE at Valaris. Stepping into this role has reinforced a lesson I learned early: safety on the U.S. Outer Continental Shelf depends on our willingness, as an industry, to share data and best practices, confront difficult findings, and hold one another accountable to uphold a higher standard of safety.

This report reflects both continuity and change. COS also welcomed Colin Frazier as its new Senior Director, COS and Safety Programs, continuing the foundational work built by Charlie Williams and Russell Holmes before him. Colin's background auditing BP's Safety and Environmental Management System in the years following Macondo is a reminder of why SEMS exists, and why it must remain a living program rather than a compliance exercise.

The results in this report are worth taking seriously. For a fourth consecutive year, COS members reported zero fatalities. For a fifth consecutive year, there were zero Level 1 or Level 2 well control incidents and zero major oil spills to water. Every COS member company submitted safety data, sustaining a level of transparency our industry should be proud of. While we are mindful of these accomplishments, reported work hours fell 20% due to membership changes, and our SEMS audit analysis shows the same five elements - Safe Work Practices, Management of Change, Hazards Analysis, Assurance of Quality and Mechanical Integrity, and Operating Procedures - account for the majority of findings across the past three SEMS audit cycles. That consistency provides a clear focus for the industry's continuous improvement efforts, while emphasizing the need to broaden membership.

Zero in any category is a milestone, but never a guarantee. The work behind these statistics, audits, subcommittees, working groups, training, and safety leadership sharing is what COS exists to support. I encourage every operator and contractor working on the U.S. OCS to consider COS membership and to contribute to our joint efforts to strengthen and improve the strong foundation SEMS has created.

My sincere thanks to Kim for his leadership, to our members for another year of full participation, and to the entire COS staff whose work makes this report and COS activities possible.

Sincerely,

MICHAEL LAWSON

Vice President, QHSE and Marine Support, Valaris
Chair, Center for Offshore Safety

EXECUTIVE SUMMARY

The COS Annual Performance Report (APR) for 2025 provides an accounting of safety-related incidents and events reported by COS member companies operating on the U.S. Outer Continental Shelf (OCS). This data reflects only COS member performance and is not representative of all companies operating on the U.S. OCS. Members voluntarily submit data to support COS' mission of advancing the highest level of safety for the U.S. offshore oil and natural gas industry. As in previous years, **100% of COS members contributed safety data**, demonstrating their ongoing commitment to safe operations, transparency, and continuous improvement. This Executive Summary highlights key findings from the Safety Performance Indicators (SPI) program. The full report is available on the COS website for those who wish to explore the complete data.

In 2025, COS member operators reported **43.2 million work hours** — a decrease of approximately 11.1 million hours compared to 2024. This reduction is primarily attributable to changes in COS membership. While the absolute number of incidents in many categories remained stable or declined, normalized rates (per 200,000 work hours) should be interpreted with this context in mind.

COS has collected data from its members since 2013, and this report presents results for the five-year period from 2021 through 2025. The data presented below reflects COS Operator data only. Additional COS Contractor data is available in the full Annual Performance Report on the COS website.

KEY FINDINGS FROM 2025 DATA

- **Zero fatalities** — for the fourth consecutive year (2022–2025).
- **Zero Level 1 or Level 2 Well Control Incidents** — for the fifth consecutive year.
- **Zero Loss of Station Keeping Incidents** — for the second consecutive year.
- **Four Tier 1 Process Safety Events** — down from 10 incidents in 2024.
- **One incident with ≥\$1 million in direct damage** — none were reported in 2023 or 2024.
- **Zero oil spills to water of 238 barrels or greater** — for the fifth consecutive year.
- **22 combined SPI 1 and SPI 2 incidents** were reported — down from 34 in 2024, the lowest count and second-lowest frequency in the past five years.
- **Nine Tier 2 Process Safety Events** — down from 12 events in 2024.
- **Eight Mechanical Lifting or Lowering incidents meeting SPI 2C criteria** — down from 10 in 2024.
- Of the 22 combined SPI 1 and SPI 2 incidents, **12 (55%) included equipment failure as a contributing factor**. Eleven of those 12 incidents (92%) involved either Process Equipment / Pressure Vessels / Piping (6) or Mechanical Lifting Equipment / Personnel Transport Systems (5).

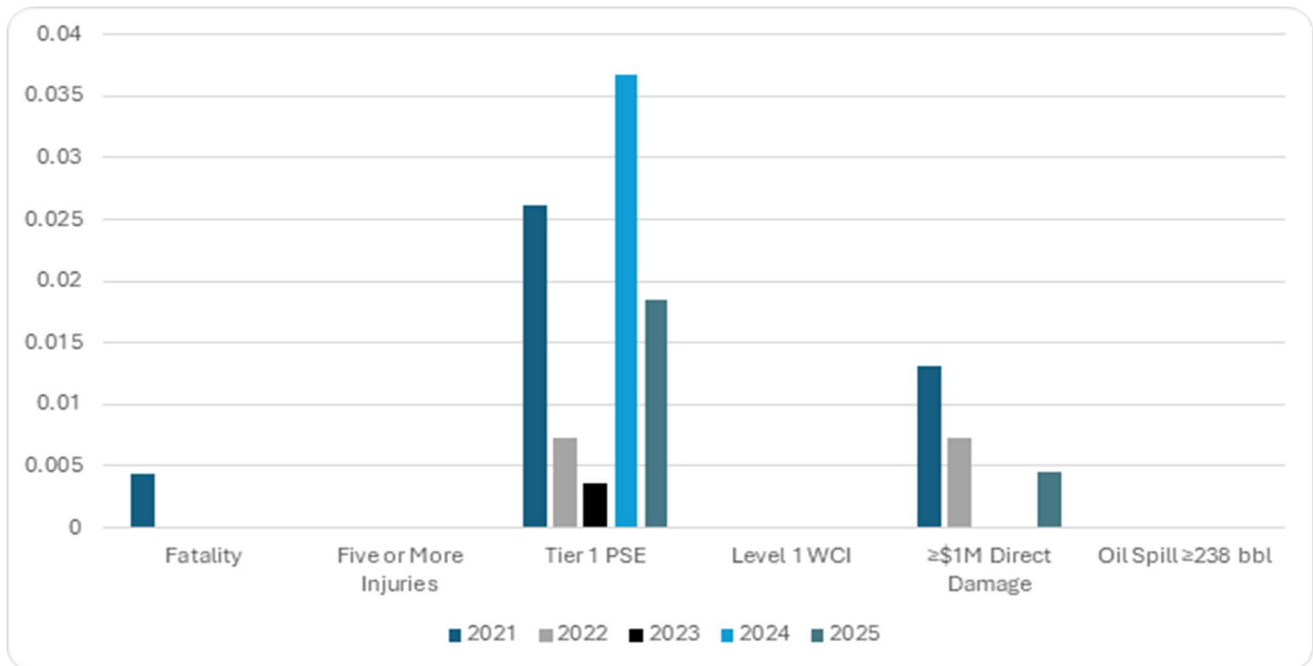
OTHER SPI FINDINGS

The following are highlights from SPI categories beyond SPI 1 and SPI 2. Full data for all SPI programs is available in the complete Annual Performance Report available from the COS website.

- **Days Away, Restricted, or Transferred (DART):** 42 incidents — improved from 73 incidents in 2024.
- **Recordable Injuries and Illnesses (RIIF):** 74 incidents — improved from 115 incidents in 2024.
- **Oil Spills to Water Greater Than 1 Barrel:** 2 incidents — down from 5 incidents in 2024.
- **Dropped Objects:** 133 incidents - improved from 263 incidents in 2024.

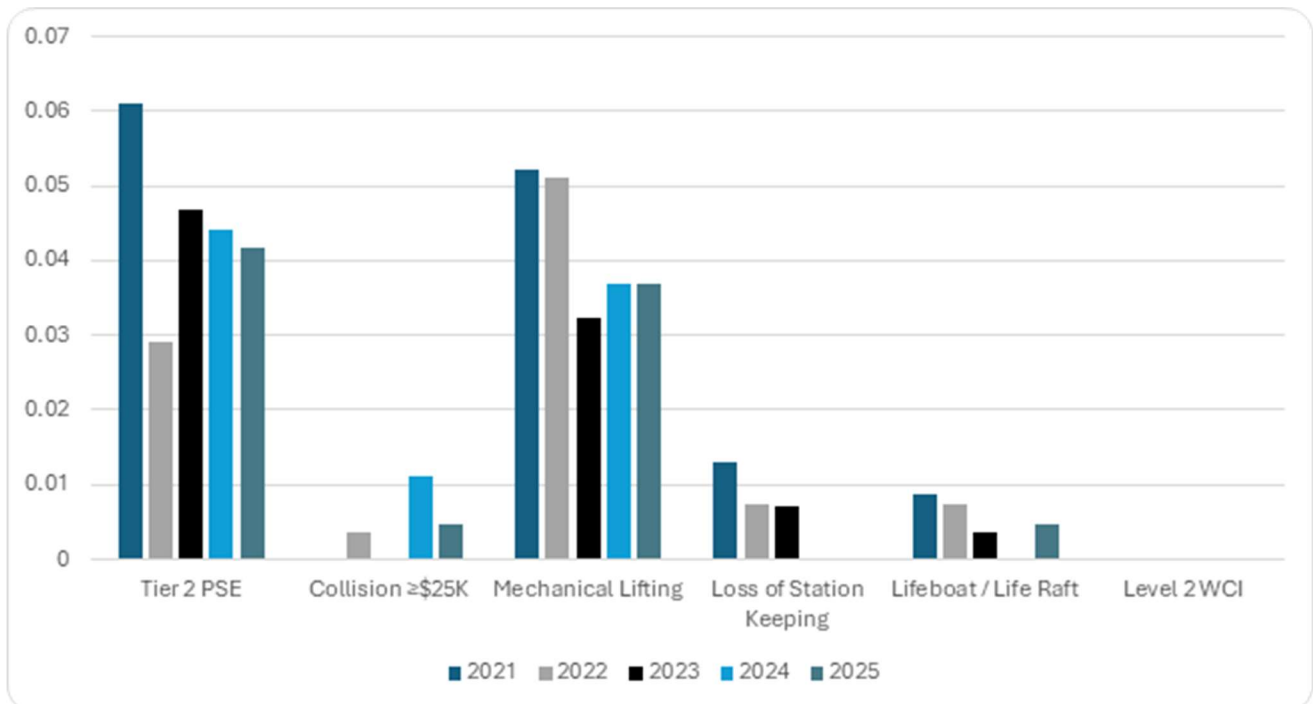
SPI 1 AND SPI 2 DATA AT-A-GLANCE

Figure 1: SPI 1 — SPI 1 Frequency by Category (2021-2025)



Bars show the 2025 incident rate per 200,000 work hours per SPI 1 sub-category.

Figure 2: SPI 2 — SPI 2 Frequency by Category (2021-2025)



Bars show the 2025 incident rate per 200,000 work hours per SPI 2 sub-category.

Figure 3: SPI 1 and SPI 2 Incident Counts (2021–2025)

SPI Category	2021	2022	2023	2024	2025
SPI 1					
Fatality	1	0	0	0	0
Five or More Injuries	0	0	0	0	0
Tier 1 Process Safety Event	6	2	1	10	4
Level 1 Well Control Incident	0	0	0	0	0
≥ \$1 Million Direct Cost Damage	3	2	0	0	1
Oil Spill to Water ≥ 238 bbl	0	0	0	0	0
SPI 1 Total	10	4	1	10	5
SPI 2					
Tier 2 Process Safety Event	14	8	13	12	9
Collision Damage ≥ \$25,000	0	1	0	3	1
Mechanical Lifting or Lowering	12	14	9	10	8
Loss of Station Keeping	3	2	1	0	0
Life Boat / Life Raft / Rescue Boat	2	2	1	0	1
Level 2 Well Control Incident	0	0	0	0	0
SPI 2 Total	30	26	24	24	17
Combined SPI 1 + SPI 2 Total	40	30	25	34	22

SEMS AUDIT DATA

In 2020, the Center for Offshore Safety (COS) requested SEMS audit results from the Bureau of Safety and Environmental Enforcement (BSEE) (now the Marine Minerals Administration (MMA)) to obtain a comprehensive view of the state of industry SEMS programs. COS made subsequent requests for this data in 2023 and again in 2026. This year's report includes an analysis of findings from **36 regulatorily required SEMS audits** completed between 2023 and 2025, representing the fifth cycle of SEMS audits. The analysis incorporates both COS member and non-member audit data and provides valuable insight into the maturity of SEMS programs across the U.S. Outer Continental Shelf (OCS). These findings help identify areas where industry safety efforts can be focused to drive continual improvement.

COS has conducted similar analyses for the previous two SEMS audit cycles. Each of those cycles included approximately ten additional audits. The reduction in audit volume during the current cycle is largely attributable to industry mergers and acquisitions, which have resulted in a smaller number of operators in the U.S. OCS.

Among the 36 SEMS audit reports submitted to BSEE between 2023 and 2025, auditors identified **56 Non-Conformances** and **120 Areas of Concern**. Collectively referred to as Deficiencies, these 176 findings typically indicate either an unsatisfactory fulfillment of a SEMS requirement or a requirement that is only marginally met and could result in a future non-conformance if corrective action is not taken. Notably, five SEMS elements accounted for **63% of all cited Deficiencies** (Non-Conformances and Areas of Concern) during the 2023–2025 audit cycle:

- **Safe Work Practices**
- **Management of Change**
- **Hazards Analysis**
- **Assurance of Quality and Mechanical Integrity**
- **Operating Procedures**

These same elements accounted for **61% of all Deficiencies** in each of the previous two audit cycles, demonstrating a consistent concentration of findings within these critical SEMS components.

SEMS MATURITY ANALYSIS METHODOLOGY

To better understand the maturity of SEMS implementation across the industry, COS developed a methodology to determine at which phase of SEMS maturity each Deficiency occurred. This assessment was conducted by a small team of SEMS and auditing subject matter experts and necessarily involved professional judgment. The methodology applied the following principles:

- Every Deficiency was evaluated to determine whether the underlying issue occurred during the **Establish**, **Implement**, or **Maintain** phase of SEMS maturity.
- The **Implement** phase was further divided into two categories:
 - **Implement**: Putting the requirement into action.
 - **Document**: Properly documenting the activity, updating related policies, procedures, and practices, and ensuring appropriate access to documentation.
- When a Deficiency could reasonably be associated with multiple maturity phases, it was assigned to the earliest applicable phase in the maturity continuum. For example, if personnel were observed using an outdated procedure because they lacked access to the current version, the finding was categorized as an Implementation issue rather than a Document issue.

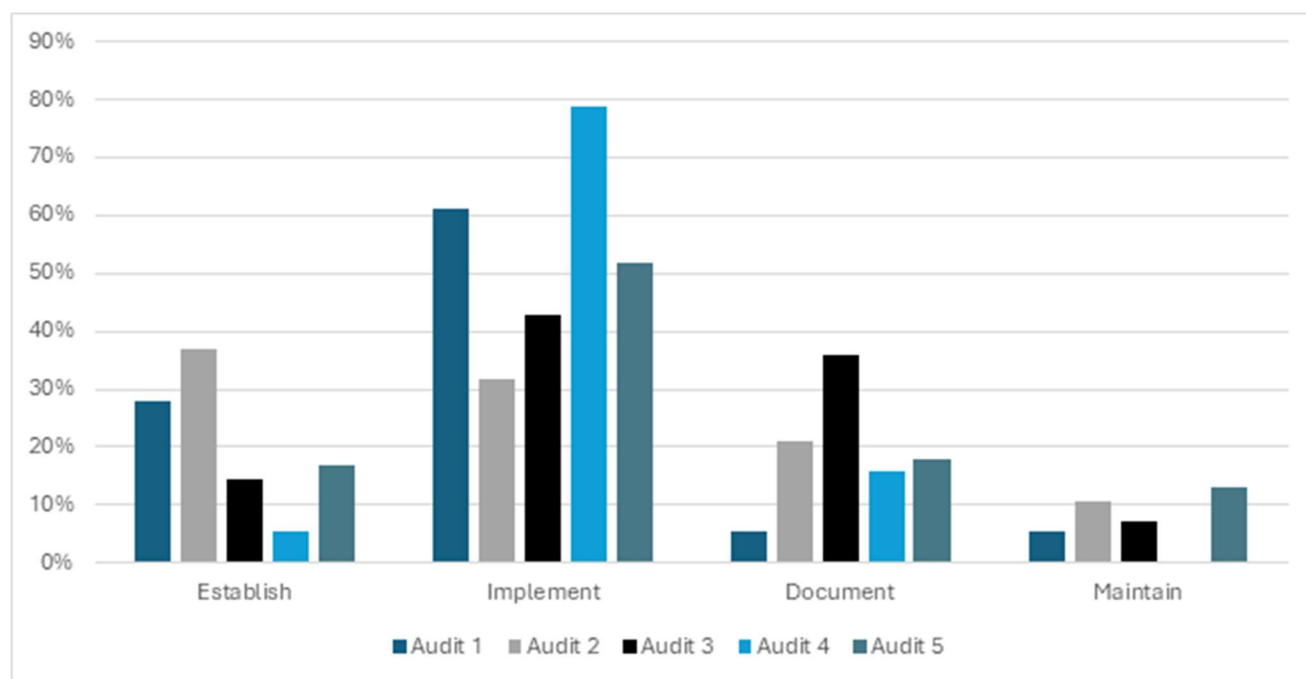
To simplify communication and improve alignment, the following shorthand descriptions were used for each maturity phase:

Maturity Phase	Shorthand	Guiding Question
Establish	<i>Do you say what you do?</i>	Do you say what you do?
Implement	<i>Do you do what you say?</i>	Do you do what you say?
Document	<i>Do you document what you do?</i>	Do you document what you do, maintain current documentation, and provide access to the appropriate personnel?
Maintain	<i>Do you verify?</i>	Do you verify that your SEMS is functioning as intended and review, track, and act on required follow-up activities?

It should be noted that not all operators have participated in every SEMS audit cycle. Because the SEMS rule became effective in 2011 and the operator population has evolved over time through new entrants, mergers, acquisitions, and divestitures, some operators were not in operation or did not hold OCS assets during earlier audit cycles.

The table below presents the distribution of Deficiencies by SEMS maturity phase, categorized according to the number of SEMS audit cycles completed by each operator.

Figure 4: Distribution of SEMS Deficiencies by Maturity Phase and Audit Cycle



Bars show the percentage of deficiencies assigned to each SEMS maturity phase for operators completing their first, second, third, fourth, or fifth SEMS audit cycle.

The results generally align with the expected progression of SEMS maturity. Operators in earlier audit cycles typically exhibit a greater concentration of Establish-phase deficiencies, while operators with additional audit cycles tend to show a shift toward Document and Maintain deficiencies as their focus moves from establishing SEMS elements to sustaining, verifying, and improving program effectiveness.

CONCLUSION

The 2025 COS Annual Performance Report reflects safety performance data voluntarily submitted by COS member companies operating on the U.S. Outer Continental Shelf (OCS). This data represents only COS member performance and is not representative of all companies operating on the U.S. OCS. For the fourth consecutive year, COS members reported zero fatalities. For the fifth consecutive year, COS members reported zero Level 1 or Level 2 Well Control Incidents and zero oil spills to water greater than 238 barrels. These milestones reflect the performance reported by COS members during the 2025 reporting year.

At the same time, the decrease in combined SPI 1 and SPI 2 incidents and rates, despite the 20% reduction in reported work hours, was accompanied by improvements in DART incidents, recordable injuries and illnesses, dropped objects, and oil spills to water.

The SEMS audit analysis identifies five elements, Safe Work Practices, Management of Change, Hazards Analysis, Assurance of Quality and Mechanical Integrity, and Operating Procedures, that accounted for the majority of deficiencies cited across multiple audit cycles. Additional review of these elements may be warranted to better understand the factors contributing to their continued prevalence in the audit data.

The maturity analysis indicates a shift in the distribution of deficiencies as operators progress through successive audit cycles, with a greater proportion of deficiencies associated with the Document and Maintain phases among operators completing later audit cycles. COS will continue to analyze SEMS audit data as additional audit cycles are completed and reported.

1.0 SAFETY PERFORMANCE INDICATORS

1.1 Introduction

SPI 1 – SPI 5 are based on structured assessments of major hazards facing the offshore industry.

SPI 6 – SPI 9 are indicators historically reported by industry and are not directly related to the structured assessment work. **SPI 10** was introduced for the 2019 reporting year and is based on the severity-potential calculator developed by *DROPSONline*¹.

SPI 1 is the frequency of incidents that resulted in one or more of the following:

- A. Fatality
- B. Five or more injuries in a single incident
- C. Tier 1 process safety event
- D. Level 1 Well Control Incident - Loss of well control
- E. ≥ \$1 million direct cost from damage to or loss of facility / vessel / equipment
- F. Oil spill to water ≥ 10,000 gallons (238 barrels)

SPI 2 is the frequency of incidents that do not meet the SPI 1 definition but have resulted in one or more of the following:

- A. Tier 2 process safety event
- B. Collision resulting in property or equipment damage ≥ \$25,000
- C. Mechanical Lifting or Lowering Incident resulting in one or more of the following:
 - One - four recordable injuries
 - \$25,000 - \$1 million direct damage
 - Tier 2 Process Safety Event
 - Dropped load that strikes live process equipment
- D. Loss of station keeping resulting in a drive off or drift off
- E. Lifeboat, life raft, rescue boat event
- F. Level 2 Well Control Incident - Multiple Barrier Systems Failures and Challenges

SPI 3 is the number of SPI 1 and SPI 2 incidents that involved failure of one or more pieces of equipment as a contributing factor.

SPI 4 is a crane or personnel/material handling operations incident

SPI 5 is the percentage of planned critical maintenance, inspection and testing (MIT) completed on time. Planned critical MIT deferred with a formal risk assessment and appropriate level of approval is not considered overdue.

SPI 6 is the number of work-related fatalities.

SPI 7 is the frequency of days away from work, restricted work, and job-transfer injury and illnesses (DART)

SPI 8 is the frequency of recordable injuries and illnesses (RIIF)

SPI 9 is the frequency of oil spills to water ≥ 1 barrel

SPI 10 is the severity potential and actual results of incidents involving a dropped object

¹ Dropped Objects Prevention Scheme Online — www.dropsonline.org

Occasionally, an incident may meet both **SPI 1** and **SPI 2** criteria. To avoid double counting, the incident is recorded only in the higher-consequence category. For example, a collision causing more than \$1 million in direct damage is counted as **SPI 1E**, not also as an **SPI 2B** collision, even though it meets both criteria.

Although some SPI definitions are the same as or similar to regulatory definitions, the results in this report reflect only data submitted by COS Member companies. Therefore, they will not match regulatory data, which include all companies operating on the U.S. OCS.

Per COS data submittal guidelines, to prevent duplication of data, COS Member Operators report all incidents that occur within 500m of their lease for both Operator and Contractor facilities and employees. A COS Member Contractor only reports an **SPI 1** or **SPI 2** incident if it occurs while they are working on the lease of a non-COS Member Operator or outside the 500m zone of a COS Member Operator.

Throughout this SPI portion of the report, work hours are used as the normalization factor to determine frequencies and rates. As a result, the charts and graphs in the following pages represent data reported by COS Member Operators. In the case where a COS Member Contractor has reported data from incidents that occurred when working for a non-COS Member Operator or which occurred outside of the 500m zone of a COS Member Operator lease, those data will be bulleted below the corresponding SPI information.

This report presents COS Member Operator data for 2021–2025. The 2025 results represent approximately **43.2 million work hours** on the U.S. OCS. That is **11.1 million hours, 20% fewer than in 2024**, mainly due to changes in COS membership.

Figure 5: COS U.S. OCS Work Hours (2021–2025)

Reporting Year	COS U.S. OCS Work Hours (Millions) — Operator
2021	45.9
2022	54.7
2023	55.5
2024	54.3
2025	43.2

1.2 SPI 1 Results and Trends

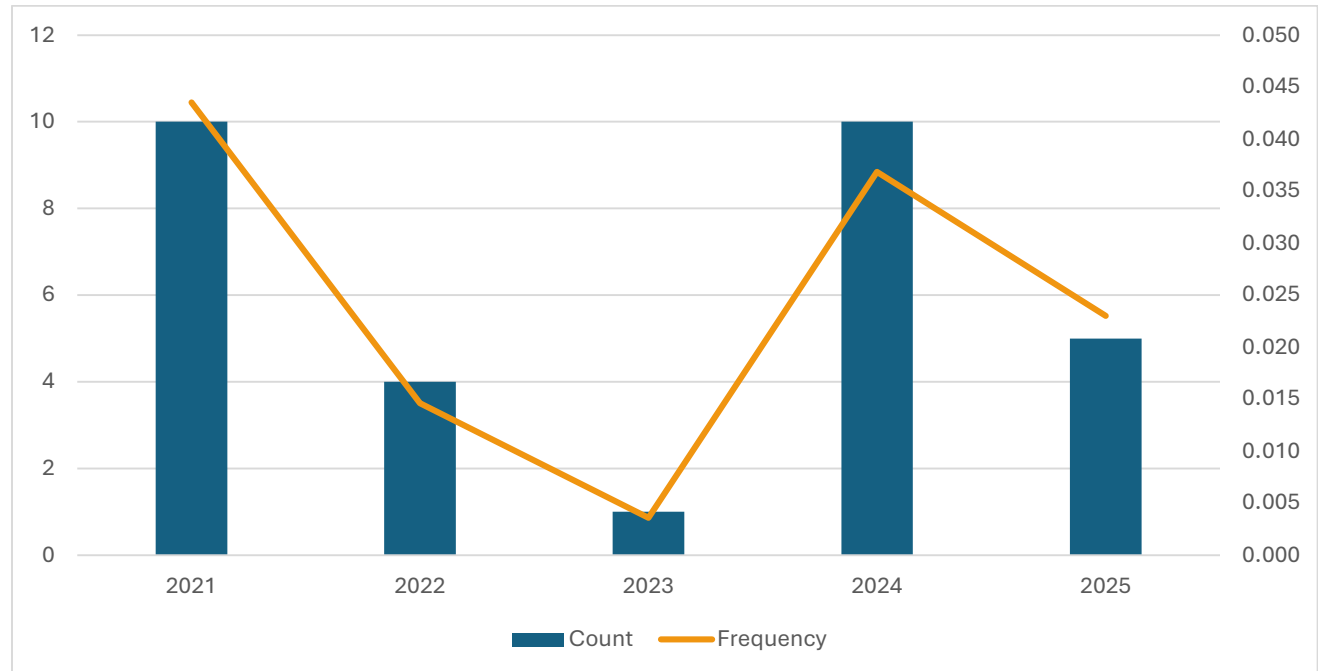
COS Member Operators reported **five SPI 1 incidents** for 2025 — a decrease from ten reported in 2024. The cited outcomes were four Tier 1 Process Safety Events (PSE) (**SPI 1C**) and one incident with ≥ \$1 Million in Direct Damages (**SPI 1E**). Zero incidents involving a Fatality (**SPI 1A**), ≥ Five Injuries in a Single Incident (**SPI 1B**), Level 1 Well Control Incident (WCI) (**SPI 1D**), or Oil Spill ≥ 10,000 gallons (**SPI 1F**) were reported.

Consistent with the milestone highlighted in the Executive Summary, 2025 marks the **fourth consecutive year (2022–2025) with zero fatalities** and the **fifth consecutive year with zero Level 1 Well Control Incidents and zero major oil spills to water** (≥ 238 barrels).

Figure 6: SPI 1 Results Summary (2021–2025)

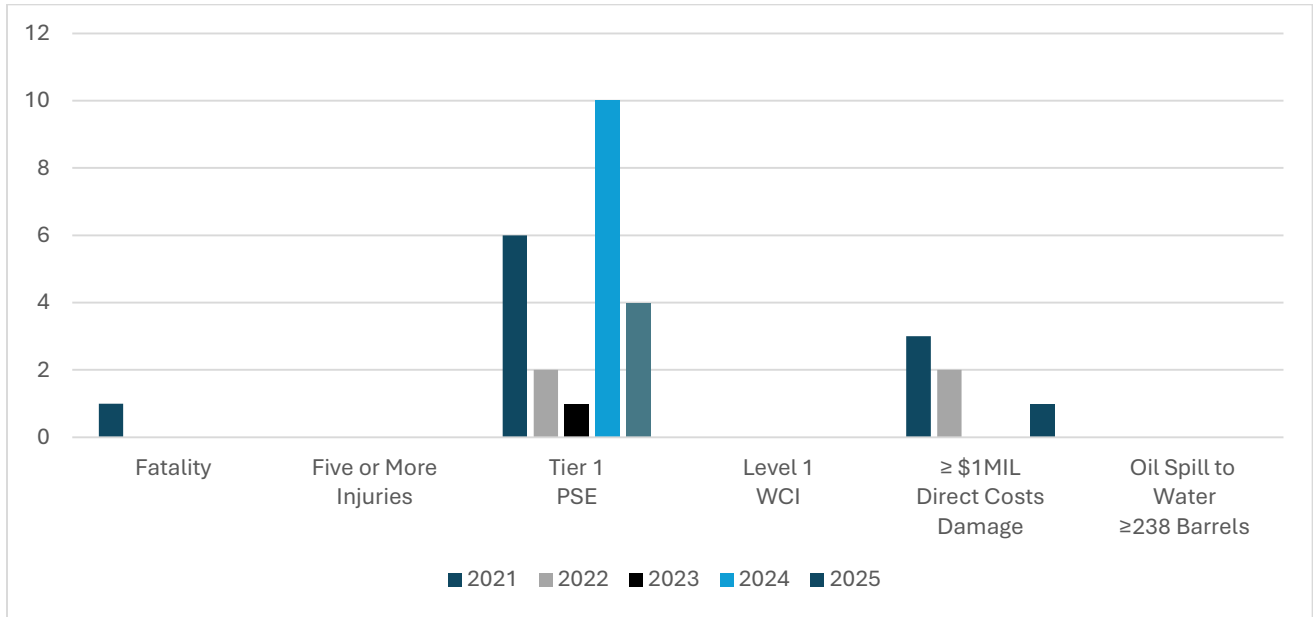
SPI 1 Category	2021	2022	2023	2024	2025
SPI 1A – Fatality	1	0	0	0	0
SPI 1B – Five or More Injuries	0	0	0	0	0
SPI 1C – Tier 1 Process Safety Event	6	2	1	10	4
SPI 1D – Level 1 Well Control Incident	0	0	0	0	0
SPI 1E – ≥ \$1 Million Direct Cost Damage	3	2	0	0	1
SPI 1F – Oil Spill to Water ≥ 238 bbl	0	0	0	0	0
SPI 1 Total	10	4	1	10	5
SPI 1 Rate (per 200k work hours)	0.044	0.015	0.004	0.037	0.023

Figure 7: SPI 1 Count and Frequency (2021–2025)



Columns show the annual number of SPI 1 incidents reported by COS Member Operators. The line shows the corresponding frequency per 200,000 work hours from 2021 through 2025.

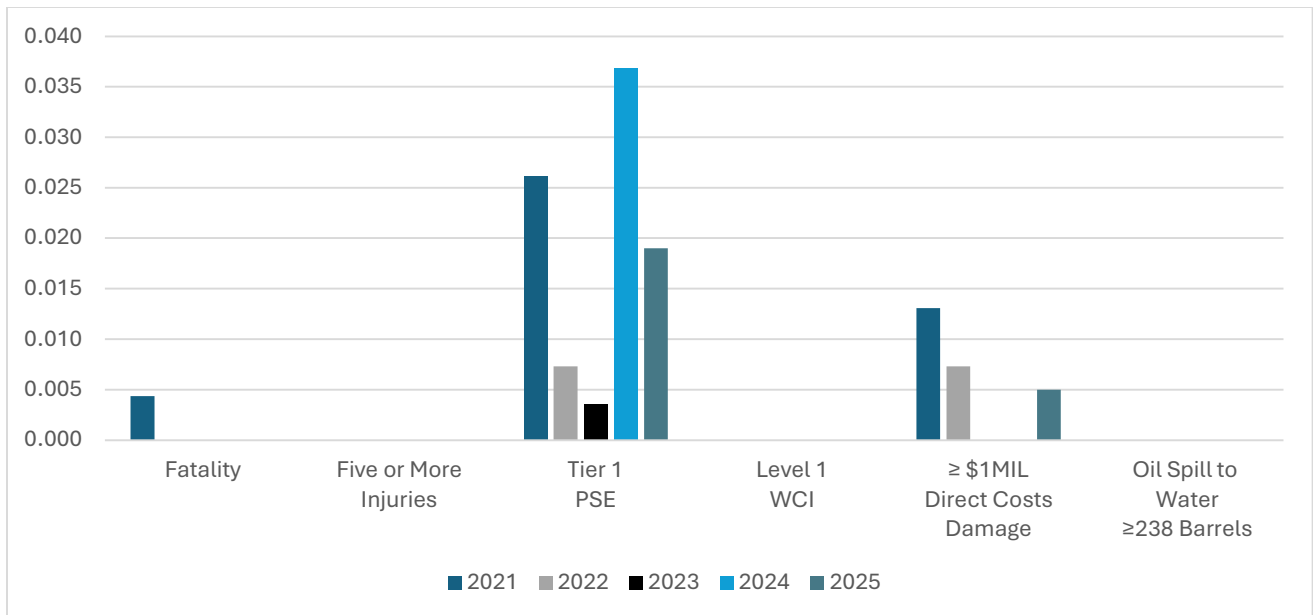
Figure 8: SPI 1 Count per Sub-Category (2021–2025)



Columns show the annual number of SPI 1 incidents reported within each SPI 1 sub-category from 2021 through 2025.

Note on Contractor Data: In addition to the data submitted by COS Member Operators, a COS Member Contractor reported one incident in 2024 resulting in ≥ \$1MIL in Direct Damages (**SPI 1E**).

Figure 9: SPI 1 Frequency per Sub-Category (2021–2025)



Columns show the frequency of SPI 1 incidents per 200,000 work hours within each SPI 1 sub-category from 2021 through 2025.

1.3 SPI 2 Results and Trends

COS Member Operators reported **17 SPI 2 incidents** for 2025, down from 24 in 2024. The normalized SPI 2 rate also decreased, from 0.088 to 0.079 incidents per 200,000 work hours. Reported outcomes included nine Tier 2 Process Safety Events (PSE) (**SPI 2A**), one collision with damage $\geq$ \$25,000 (**SPI 2B**), eight Mechanical Lifting or Lowering incidents (**SPI 2C**), zero Loss of Station Keeping incidents (**SPI 2D**), one Lifeboat / Life Raft / Rescue Boat event (**SPI 2E**), and zero Level 2 Well Control Incidents (**SPI 2F**). Because an incident may meet more than one SPI 2 subcategory, the category counts do not necessarily sum to the total number of SPI 2 incidents.

The nine Tier 2 PSE (**SPI 2A**) incidents reported in 2025 were below the five-year average of approximately 11 incidents and down from 12 in 2024. The normalized rate also decreased, from 0.044 in 2024 to 0.042 in 2025, despite fewer reported work hours.

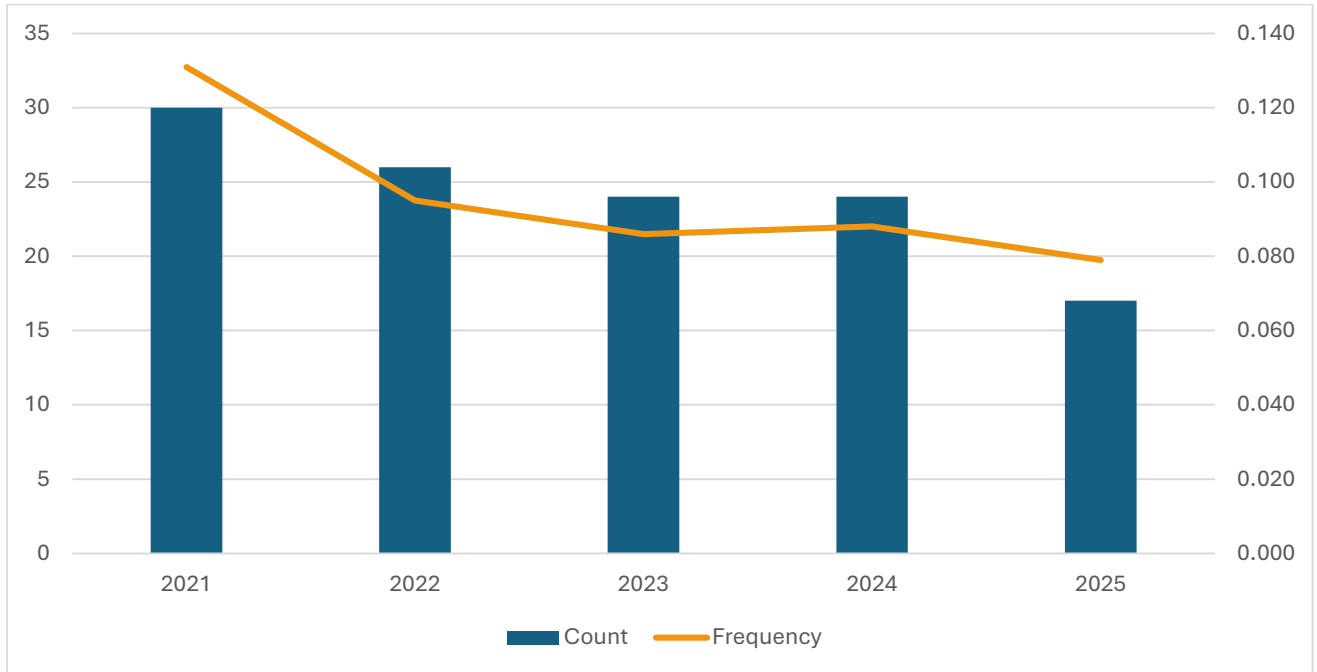
The eight Mechanical Lifting or Lowering incidents (**SPI 2C**) in 2025 represent a decrease from ten reported in 2024.

2025 marks the **second consecutive year with zero Loss of Station Keeping** (Drive-Off or Drift-Off) incidents (**SPI 2D**), following several years of one to three incidents annually from 2021 through 2023.

Figure 10: SPI 2 Results Summary (2021–2025)

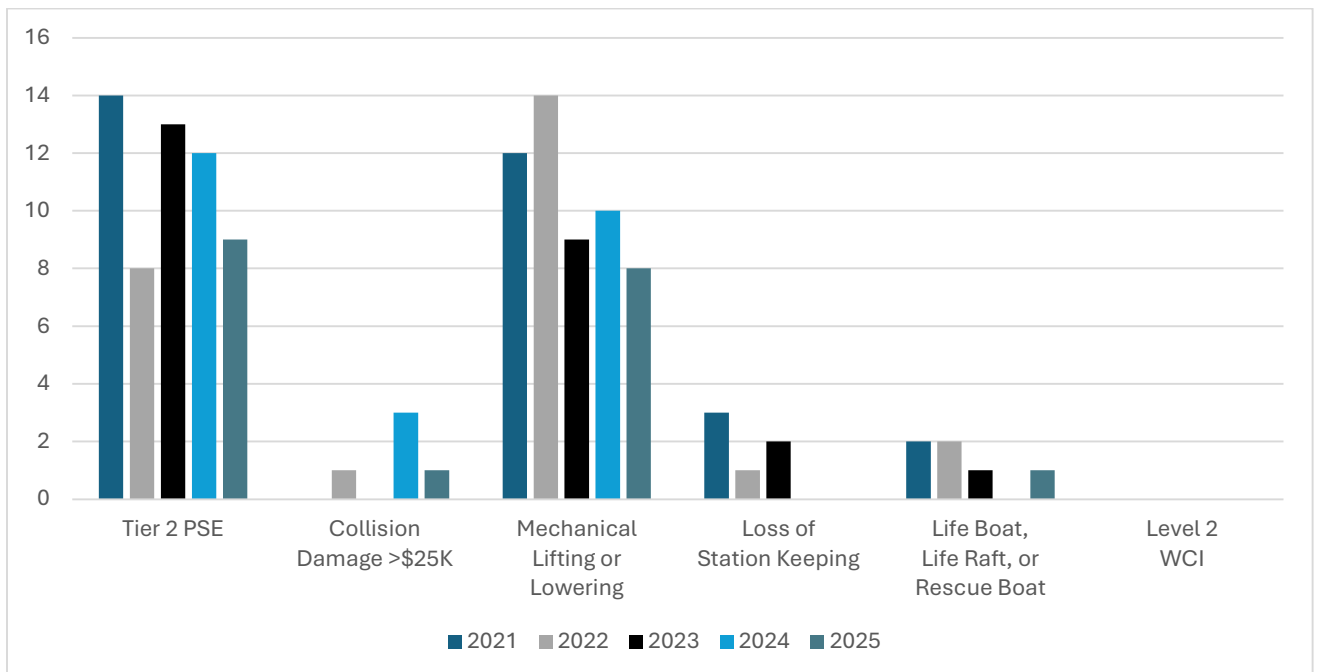
SPI 2 Category	2021	20	2023	2024	2025
SPI 2A – Tier 2 Process Safety Event	14	8	13	12	9
SPI 2B – Collision Damage $\geq$ \$25,000	0	1	0	3	1
SPI 2C – Mechanical Lifting or Lowering	12	14	9	10	8
SPI 2C-1: Crane Incidents	9	7	8	7	2
SPI 2D – Loss of Station Keeping	3	2	1	0	0
SPI 2E – Lifeboat / Life Raft / Rescue Boat	2	2	1	0	1
SPI 2F – Level 2 Well Control Incident	0	0	0	0	0
SPI 2 Total	30	26	24	24	17
SPI 2 Rate (per 200k work hours)	0.131	0.095	0.086	0.088	0.079
Combined SPI 1 + SPI 2 Total	40	30	25	34	22

Figure 11: SPI 2 Count and Frequency (2021–2025)



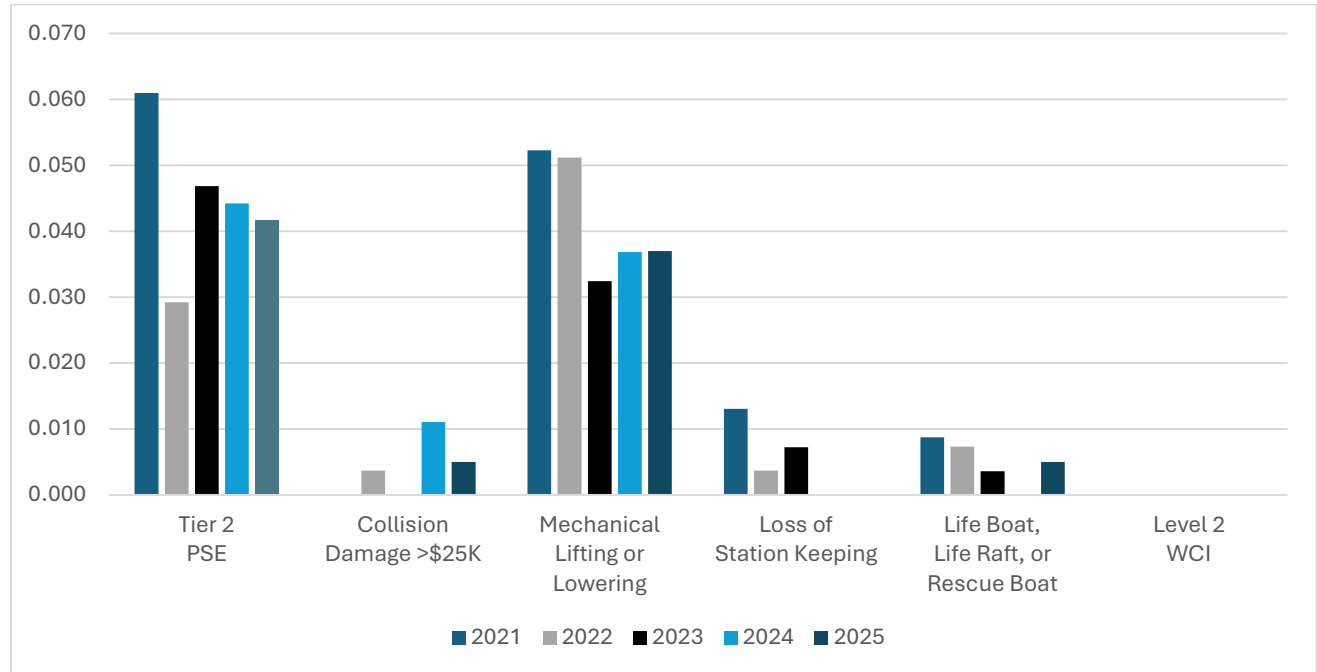
Columns show the annual number of SPI 2 incidents reported by COS Member Operators. The line shows the corresponding frequency per 200,000 work hours from 2021 through 2025.

Figure 12: SPI 2 Count per Sub-Category (2021–2025)



Columns show the annual number of SPI 2 incidents reported within each SPI 2 sub-category from 2021 through 2025.

Figure 13: SPI 2 Frequency per Sub-Category (2021–2025)



Columns show the frequency of SPI 2 incidents per 200,000 work hours within each SPI 2 sub-category from 2021 through 2025.

1.4 SPI 3 Results and Trends

Of the 22 combined **SPI 1** and **SPI 2** incidents reported by COS Member Operators for 2025, **12 involved Failure of Equipment as a Contributing Factor (SPI 3)**, or **54.5%**. This proportion was slightly lower than the 56% recorded in 2024, but higher than the 35% reported in 2021.

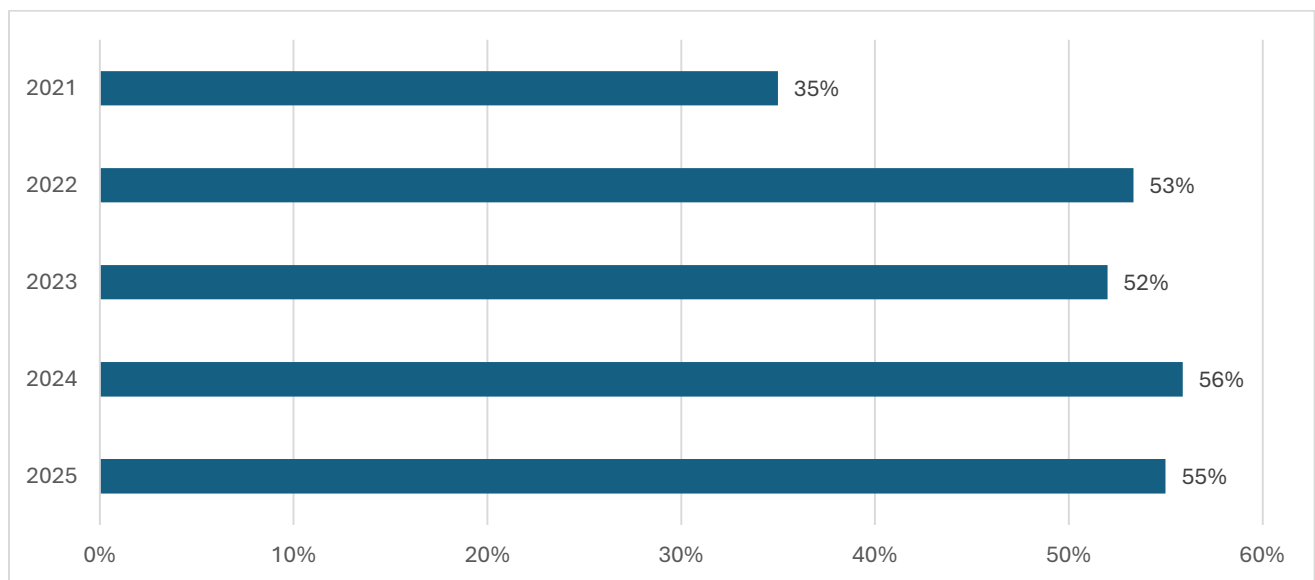
The most frequently cited equipment categories in 2025 were Process Equipment / Pressure Vessels / Piping (**SPI 3E**, 6 incidents) and Mechanical Lifting Equipment / Personnel Transport Systems (**SPI 3I**, 5 incidents), accounting for 11 of the 12 equipment-related incidents.

Notably, Fire/Gas Detection and Fire Fighting Systems (**SPI 3H**) — which accounted for six failures in 2024 — returned to zero in 2025.

Figure 14: SPI 3 Equipment Failure Categories (2021–2025)

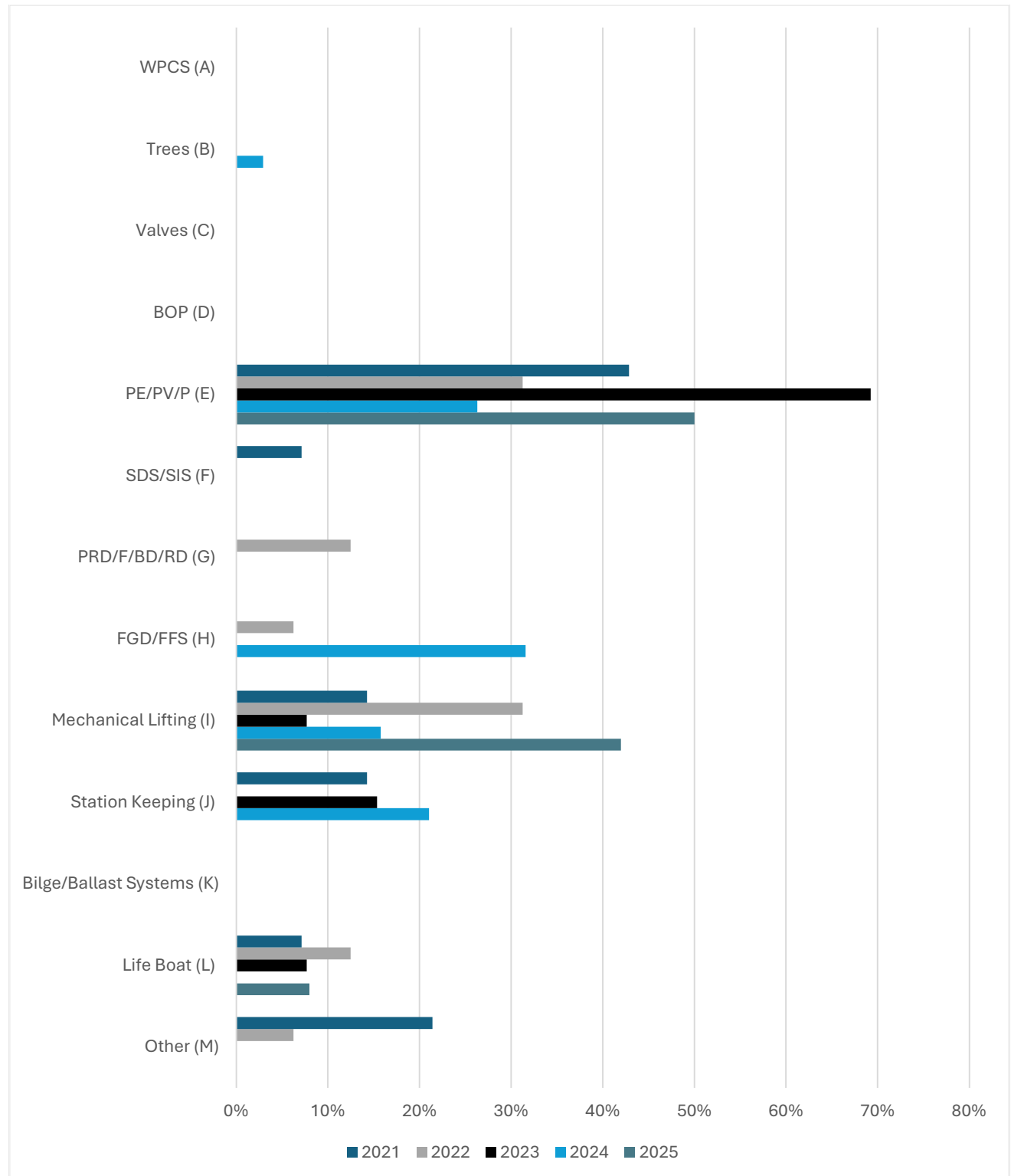
Equipment Category	2021	2022	2023	2024	2025
A — Well Pressure Containment System (WPCS)	0	0	0	0	0
B — Christmas Trees	0	0	0	1	0
C — Downhole Safety Valves (Valves)	0	0	0	0	0
D — Blowout Preventers and Intervention Systems (BOP)	0	0	0	0	0
E — Process Equipment / Pressure Vessels / Piping (PE/PV/P)	6	5	9	5	6
F — Shutdown Systems / Automated Safety Instrumented Systems (SDS/SIS)	1	0	0	0	0
G — Pressure Relief Devices / Flares / Blowdown / Rupture Disks (PRD/F/B/RD)	0	2	0	0	0
H — Fire/Gas Detection and Fire Fighting Systems (FGD/FFS)	2	1	0	6	0
I — Mechanical Lifting Equipment / Personnel Transport Systems	2	5	1	3	5
J — Station Keeping Systems	2	0	2	4	0
K — Bilge/Ballast Systems	0	0	0	0	0
L — Lifeboat / Life Raft / Rescue Boat / Launch and Recovery Systems	1	2	1	0	1
M — Other	3	1	0	0	0
SPI 3 Total (Incidents with Equipment Failure)	14	16	13	19	12
% of Combined SPI 1 + SPI 2 Incidents	35%	53%	52%	56%	54.5%

Figure 15: SPI 3 Equipment Failure as a Contributing Factor (2021–2025)



Columns show the percentage of combined SPI 1 and SPI 2 incidents that involved equipment failure as a contributing factor from 2021 through 2025.

Figure 16: SPI 3 Equipment Failures by Equipment Category (2021–2025)



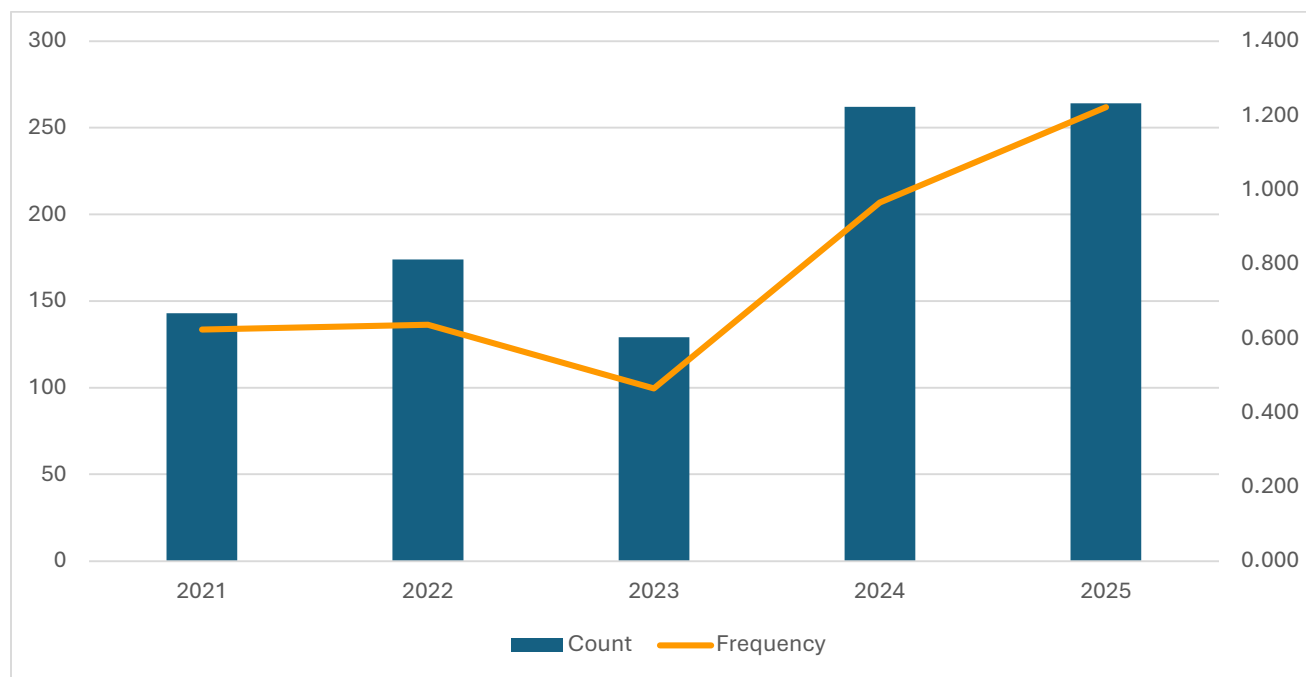
Columns show the percentage of SPI 3 incidents attributed to each equipment category from 2021 through 2025.

1.5 SPI 4 Results and Trends

SPI 4 is a crane or personnel/material handling operations incident.

The number of Incidents Involving Cranes or Personnel/Material Handling (**SPI 4** — of which **SPI 2C** is a subset) reported by COS Member Operators for 2025 was 264; essentially flat compared to 262 reported for 2024. However, the normalized rate for 2025 (1.222) is higher than 2024 (0.965) due to the reduction in reported work hours, underscoring the importance of evaluating trends in context.

Figure 17: SPI 4 Crane or Personnel / Material Handling Count and Freq (2021–2025)



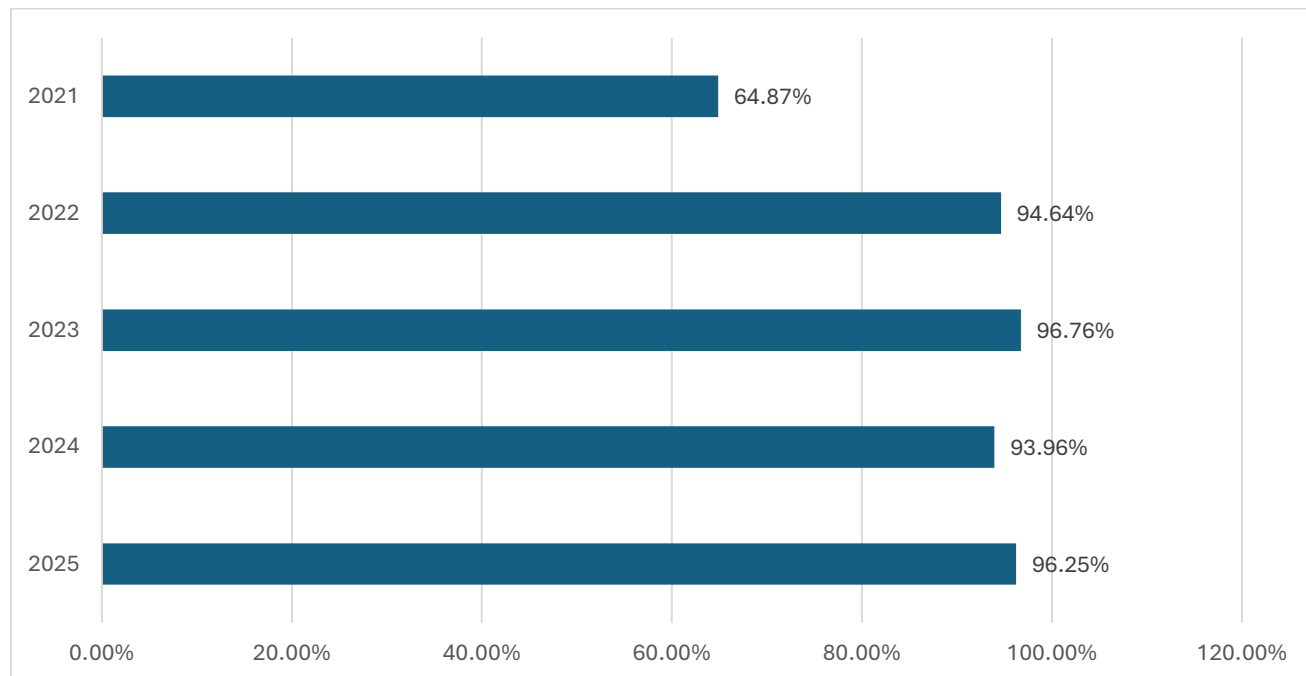
Columns show the annual number of SPI 4 crane or personnel/material handling incidents reported by COS Member Operators. The line shows the corresponding frequency per 200,000 work hours from 2021 through 2025.

1.6 SPI 5 Results and Trends

SPI 5 is the percentage of planned critical maintenance, inspection, and testing (MIT) completed on time. Planned critical MIT deferred with a formal risk assessment and appropriate level of approval is not considered overdue.

For COS Member Operators that submitted **SPI 5** data (Percentage of Planned Critical Maintenance Completed on Time), the combined average for 2025 was **96.25%** — an improvement from 93.96% in 2024 and consistent with the multi-year trend of strong maintenance completion rates

Figure 18: SPI 5 Planned Critical MIT Completed on Time (2021–2025)



Columns show the percentage of planned critical maintenance, inspection, and testing (MIT) completed on time from 2021 through 2025. Note: Each company defines what maintenance, inspection, and testing tasks qualify as "critical."

1.7 SPI 6–9 Results and Trends

- **SPI 6** is the number of work-related fatalities
- **SPI 7** is the frequency of days away from work, restricted work, and job-transfer injuries and illnesses (DART)
- **SPI 8** is the frequency of recordable injuries and illnesses (RIIF)
- **SPI 9** is the frequency of oil spills to water ≥ 1 barrel

Zero COS Member Operators reported incidents with fatalities (**SPI 6**) for 2025. This is the **fourth consecutive year** (2022–2025) with zero fatalities reported by COS Members.

The combined Days Away from Work, Restricted Work and Transfer of Duty Rate (DART) (**SPI 7**) for 2025 was **0.194**, based on 42 incidents. In 2024, the rate was 0.269, based on 73 incidents

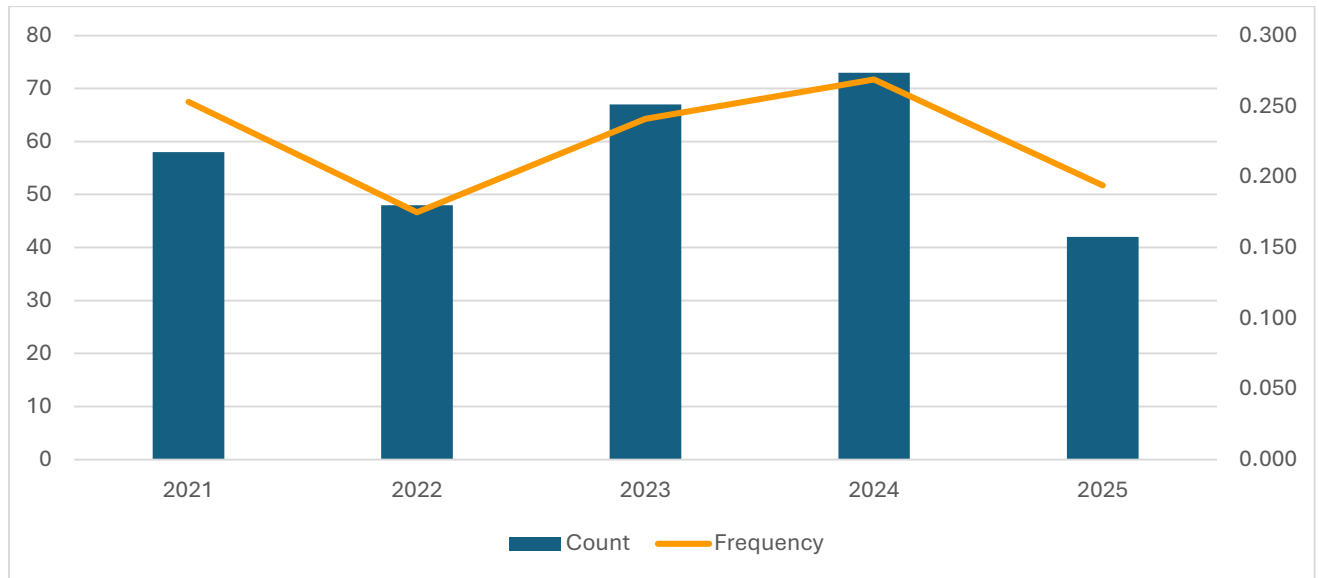
The combined Recordable Injury and Illness Frequency (RIIF) (**SPI 8**) for 2025 was **0.342**, based on 74 incidents. In 2024, the rate was 0.424, based on 115 incidents.

COS Member Operators reported **two** Oil Spills to Water $\geq$ One Barrel (**SPI 9**) for 2025, down from five reported in 2024 and the lowest count in the five-year period.

Figure 19: SPI 7 and SPI 8 Results Summary (2021–2025)

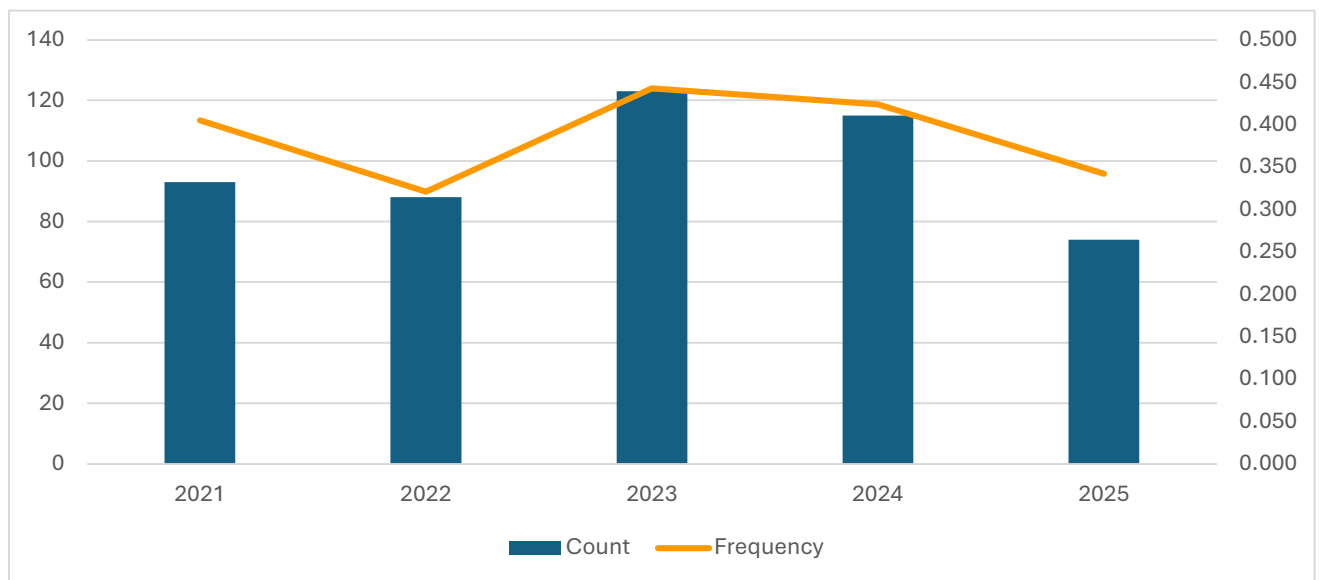
Indicator	2021	2022	2023	2024	2025
SPI 7 — DART Count	58	48	67	73	42
SPI 8 — RIIF Count	93	88	123	115	74

Figure 20: SPI 7 DART (Days Away, Restricted, Transfer) Count and Freq. (2021–2025)



Columns show the annual number of DART incidents reported by COS Member Operators. The line shows the corresponding DART rate per 200,000 work hours from 2021 through 2025.

Figure 21: SPI 8 RIIF (Recordable Injuries and Illnesses) Count and Freq. (2021–2025)

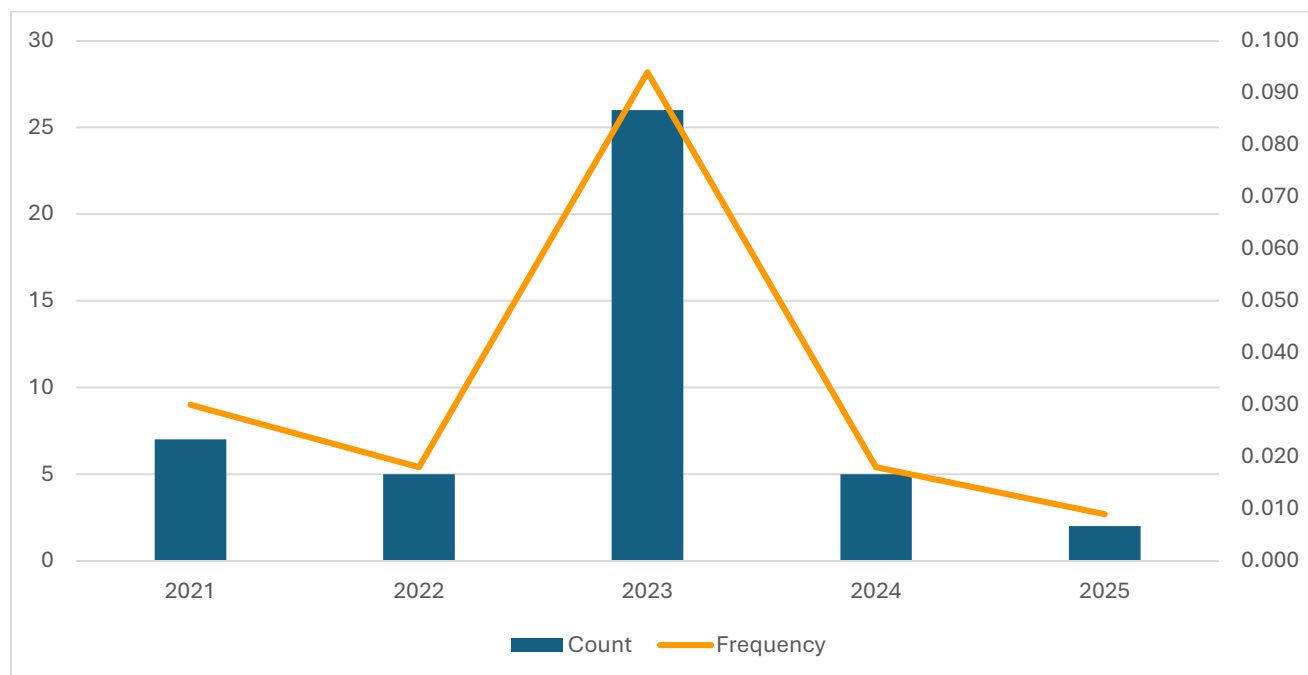


Columns show the annual number of recordable injuries and illnesses reported by COS Member Operators. The line shows the corresponding RIIF rate per 200,000 work hours from 2021 through 2025.

Figure 22: SPI 9 Oil Spills to Water ≥ One Barrel (2021–2025)

	2021	2022	2023	2024	2025
SPI 9 – Oil Spills to Water ≥ 1 Barrel (Count)	7	5	26	5	2
Rate (per 200k work hours)	0.030	0.018	0.094	0.018	0.009

Figure 23: SPI 9 Count of Oil Spills to Water ≥ One Barrel (2021–2025)



Columns show the annual number of oil spills to water greater than or equal to one barrel reported by COS Member Operators. The line shows the corresponding rate per 200,000 work hours from 2021 through 2025.

1.8 SPI 10 Results

SPI 10 is the severity potential and actual results of incidents involving a dropped object.²

SPI 10 data are reported by both COS Member Operators and Contractors. Operator data include all dropped object incidents on or within 500 meters of their leases, including incidents involving contractors. Contractor data include incidents that occurred while working for a non-COS Member Operator or outside the 500-meter area around a COS Member Operator lease.

Beginning with the 2023 reporting year data collection, **SPI 10** is reported both as **potential** and **actual** results of incidents involving a dropped object. For example, if an object weighing 25 lbs. dropped from a height of 100 ft and there were no injuries as a result, it would be reported as **potentially** fatal but resulting in zero **actual** harm.

The total number of dropped object incidents fell sharply in 2025, from 298 to 145. The lower number of reported work hours should be kept in mind; however, after normalizing Operator-reported incidents by work hours, the rate also decreased by **36.5%**, from 0.969 in 2024 to 0.615 in 2025.

² Dropped Objects Prevention Scheme Online — www.dropsonline.org

Figure 24: SPI 10 Dropped Object Incidents (2021–2025)

	2021	2022	2023	2024	2025
SPI 10 – Dropped Objects Incidents (Total)	213	305	249	298	145

Figure 25: SPI 10 Dropped Object Fatality Potential (2024–2025)

Fatality Potential	2024	2025
Number of Dropped Objects with Fatality Potential:	82	52
Actual results:		
# of Fatalities	0 (0%)	0 (0%)
# of Major Injuries	2 (2.4%)	1 (1.9%)
# of Minor Injuries	0 (0%)	0 (0%)
# of Slight Injuries	1 (1.2%)	1 (1.9%)
# resulting in Zero Injuries	81 (98.8%)	50 (96.2%)

Figure 26: SPI 10 Dropped Object Major Injury Potential (2024–2025)

Major Injury Potential	2024	2025
Number of Dropped Objects with Major Injury Potential:	23	7
Actual results:		
# of Major Injuries	0 (0%)	0 (0%)
# of Minor Injuries	0 (0%)	0 (0%)
# of Slight Injuries	1 (4.3%)	0 (0%)
# resulting in Zero Injuries	22 (95.7%)	7 (100%)

Figure 27: SPI 10 Dropped Object Minor Injury Potential (2024–2025)

Minor Injury Potential	2024	2025
Number of Dropped Objects with Minor Injury Potential:	73	15
Actual results:		
# of Minor Injuries	0 (0%)	5 (33.3%)
# of Slight Injuries	1 (1.4%)	0 (0%)
# resulting in Zero Injuries	72 (98.6%)	10 (66.7%)

Figure 28: SPI 10 Dropped Object Slight Injury Potential (2024–2025)

Slight Injury Potential	2024	2025
Number of Dropped Objects with Slight Injury Potential:	120	71
Actual results:		
# of Slight Injuries	4 (3.3%)	16 (22.5%)
# resulting in Zero Injuries	116 (96.7%)	55 (77.5%)

NOTE: The total count of injuries may be greater than the number of incidents reported, as one incident can have multiple injuries.

1.9 Normalization Factor (Work Hours)

The 2025 data reported represents approximately **43.2 million** Operator work hours on the U.S. OCS — a decrease of approximately **11.1 million hours (20%)** compared to 2024. This reduction is primarily attributable to changes in COS membership.

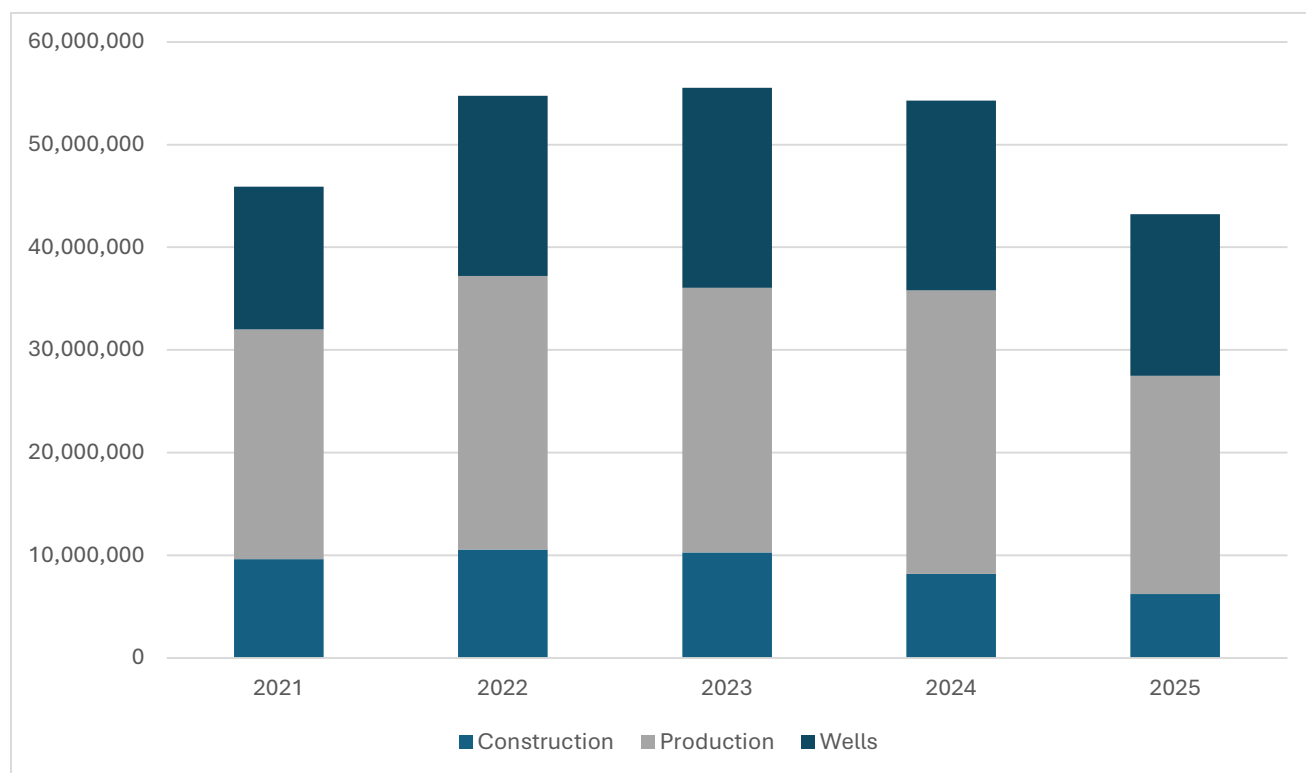
Rates in this report are normalized per 200,000 work hours. Because the number of reported work hours varies by year, changes in incident counts and changes in normalized rates may differ.

COS Member Operators report work hours for work occurring within 500m of their U.S. OCS facilities.

Figure 29: COS U.S. OCS Work Hours (2021–2025)

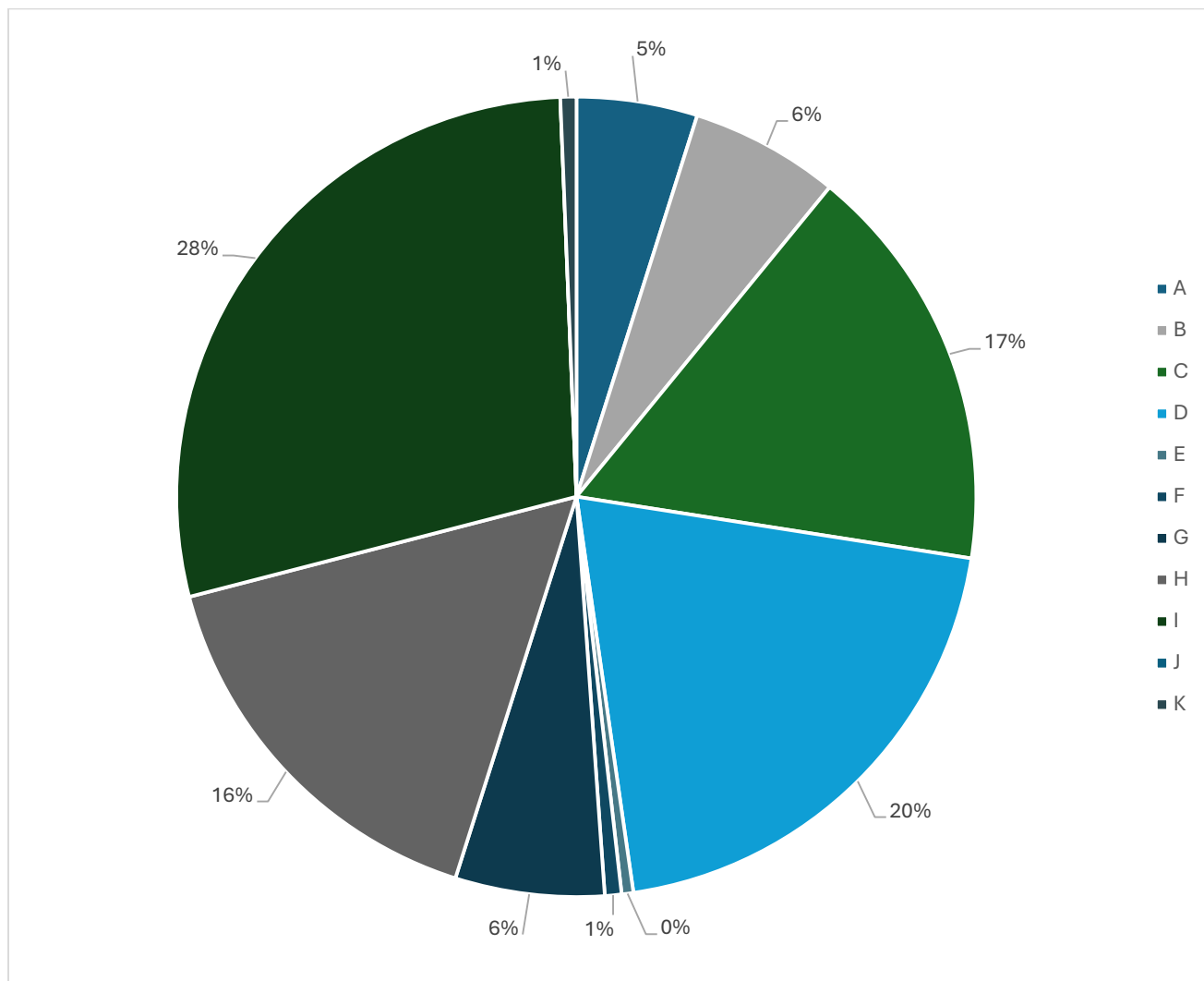
Year	2021	2022	2023	2024	2025
COS U.S. OCS Work Hours (Millions)	45.9	54.7	55.5	54.3	43.2

Figure 30: Work Hours (Millions) by Operation Type (2021–2025)



Columns show annual COS Member Operator work hours reported for Construction, Production, and Wells activities from 2021 through 2025.

Figure 31: 2025 Work Hours by COS Member Operator



Pie slices show the percentage of 2025 work hours reported by individual COS Member Operators. Operator names have been anonymized and are represented by letters A through K.

2.0 LEARNING FROM INCIDENTS & EVENTS

2.1 Introduction

The Learning from Incidents and Events (LFI) Program provides a mechanism for COS members to voluntarily share incidents, events, corrective actions, and lessons learned. Submittals are anonymized through a process administered by the API Statistics Department prior to distribution through COS. The program includes incidents meeting SPI reporting criteria as well as other events selected by participating companies for industry learning purposes.

LFI reports include descriptions of the event, corrective actions taken, lessons learned, and Areas for Improvement (AFI) identified by the submitter. Multiple AFIs and SEMS elements may be associated with a single report.

2.2 Areas for Improvement Identified in 2025 LFI Submissions

Due to the voluntary nature of the LFI program, this is not an all-inclusive record of incidents and events occurring in any given year. COS members use their discretion in selecting which incidents and events to submit through the program. Therefore, while the table below presents five years of reported AFI data, year-to-year changes in percentages are not necessarily indicative of an industry trend.

A change to the AFI data collection process was implemented beginning with the 2024 reporting year. Under the revised process, COS members selecting an AFI category are provided additional options to identify more specifically why that AFI was selected. For example, a submission citing **Operating Procedures or Safe Work Practices** may identify whether procedures were unavailable, inaccessible, out-of-date, or available but not followed.

The 2025 reporting year represents the second year of AFI data collected using this revised methodology. While comparisons between 2024 and 2025 may be informative, the revised process has resulted in a shorter historical baseline than is available for other APR metrics. While it may be tempting to compare 2024 and 2025 results, the revised methodology has been in place for only two reporting years. Additional years of data will provide a broader basis for evaluating changes over time.

Figure 32: Areas for Improvement in LFI Submittals (2021-2025)

Area for Improvement	2021	2022	2023	2024	2025	5-yr Avg
Operating Procedures or Safe Work Practices	37.2%	38.9%	44.4%	26.1%	38.5%	37.0%
Quality of Task Planning and Preparation	25.6%	16.7%	8.3%	60.9%	17.3%	25.8%
Facility or Equipment Design or Layout	16.3%	22.2%	27.8%	26.1%	23.1%	23.1%
Quality of Task Execution	20.9%	9.3%	11.1%	56.5%	15.4%	22.6%
Facility or Equipment Reliability	30.2%	20.4%	19.4%	17.4%	25.0%	22.5%
Individual or Group Decision-Making	11.6%	11.1%	16.7%	39.1%	19.2%	19.5%
Risk Assessment and Management Process	9.3%	24.1%	27.8%	0.0%	34.6%	19.2%
Personnel Skills or Knowledge	14.0%	5.6%	19.4%	39.1%	11.5%	17.9%
Quality of Hazard Mitigation	9.3%	18.5%	2.8%	26.1%	23.1%	16.0%
Facility or Equipment Material Specification, Fabrication, and Construction	16.3%	14.8%	11.1%	8.7%	15.4%	13.3%
Communication	9.3%	13.0%	5.6%	21.7%	9.6%	11.8%
Work Direction or Management Process	0.0%	11.1%	13.9%	13.0%	5.8%	8.8%
Emergency Response Process	0.0%	1.9%	2.8%	4.3%	3.8%	2.6%
Management of Change Process	2.3%	1.9%	0.0%	0.0%	3.8%	1.6%
Instrument, Analyzer, and Controls Reliability	0.0%	0.0%	5.6%	0.0%	0.0%	1.1%

A review of the 2025 LFI submissions identified several Areas for Improvement (AFI) that were cited more frequently than others. The most frequently cited AFIs were: [\[](#)

- **Operating Procedures or Safe Work Practices** (38.5%)
- **Risk Assessment and Management Process** (34.6%)
- **Facility or Equipment Reliability** (25.0%)
- **Facility or Equipment Design or Layout** (23.1%)
- **Quality of Hazard Mitigation** (23.1%)

Compared with 2024, the largest changes observed in 2025 included:

- **Risk Assessment and Management Process** increased from 0.0% to 34.6%.
- **Operating Procedures or Safe Work Practices** increased from 26.1% to 38.5%.
- **Quality of Task Planning and Preparation** decreased from 60.9% to 17.3%.
- **Quality of Task Execution** decreased from 56.5% to 15.4%.
- **Facility or Equipment Reliability** increased from 17.4% to 25.0%.

Several AFIs, including Operating Procedures or Safe Work Practices, Risk Assessment and Management Process, Facility or Equipment Reliability, Facility or Equipment Design or Layout, and Quality of Hazard Mitigation, were reported at levels above their respective five-year averages in 2025.

2.3 SEMS Elements Identified in 2025 LFI Submissions

A total of 117 SEMS element selections were identified across 49 LFI submissions. Individual submissions may cite more than one SEMS element.

Figure 33: SEMS Elements Identified in LFI Submittals (2021-2025)

SEMS ELEMENTS	2021	2022	2023	2024	2025	5-yr Avg
Leadership	1.90%	6.50%	4.40%	2.70%	1.9%	3.5%
Interface Management	0.00%	3.20%	0.00%	2.70%	1.9%	1.6%
Risk Assessment and Risk Controls	25.00%	33.90%	40.00%	59.50%	51.9%	42.1%
Procedures	36.50%	32.30%	53.30%	35.10%	38.5%	39.1%
Safe Work Management and Safe Work Practices	42.30%	51.60%	37.80%	37.80%	38.5%	41.6%
Knowledge and Skills	23.10%	14.50%	28.90%	21.60%	19.2%	21.5%
Asset Design and Integrity	19.20%	25.80%	35.60%	24.30%	34.6%	27.9%
Management of Change	3.80%	3.20%	8.90%	5.40%	7.7%	5.8%
Pre-Startup Review	7.70%	6.50%	2.20%	5.40%	5.8%	5.5%

Emergency Response and Preparedness	1.90%	1.60%	2.20%	5.40%	7.7%	3.8%
Investigating and Learning from Incidents	17.30%	16.10%	6.70%	27.00%	9.6%	15.3%
Evaluation and Improvement of SEMS	0.00%	0.00%	2.20%	0.00%	3.8%	1.2%
SEMS Information	1.90%	0.00%	0.00%	0.00%	3.8%	1.1%

The most frequently selected SEMS elements in 2025 were:

- Risk Assessment & Risk Controls
- Procedures
- Safe Work Management & Practices
- Asset Design & Integrity

Together, these four SEMS elements accounted for approximately 73% of all SEMS element selections reported in 2025 LFI submissions.

The full set of 2025 LFI submissions is currently being reviewed for conversion into COS Safety Shares. Once finalized, the Safety Shares will be published on the Center for Offshore Safety website and made available for download. These Safety Shares will present selected incident descriptions, corrective actions, and lessons learned submitted through the LFI program. For additional information and future Safety Share publications, visit centerforoffshoresafety.org.

3.0 SEMS FIFTH AUDIT CYCLE RESULTS

3.1 Background

The Bureau of Safety and Environmental Enforcement (BSEE) issued the Workplace Safety Rule, commonly referred to as the Safety and Environmental Management Systems (SEMS) regulation, in October 2010. The regulation requires operators conducting activities on the U.S. Outer Continental Shelf (OCS) to develop, implement, and audit a SEMS. SEMS audits are intended to verify that companies have established, implemented, and maintained a SEMS throughout their U.S. OCS operations and to identify areas where SEMS programs may be improved. Operators completed the first audit by the end of 2013 and have subsequently completed additional audits at least every three years. The three-year periods during which every operator in the OCS completes an audit is referred to as an audit cycle. The first was 2011-2013, the second was 2014-2016, the third was 2017-2019, the fourth was 2020-2022, and the fifth was 2023-2025.

Beginning in 2014, COS requested audit results from COS Operator Members to identify performance trends and learning opportunities associated with the first audit cycle. Similar analyses were conducted following the second audit cycle. Beginning with the third audit cycle, COS requested SEMS audit data directly from BSEE, now the Marine Minerals Administration (MMA), to provide a more comprehensive view of SEMS audit results across the U.S. OCS. Additional data requests were made following the fourth audit cycle and again following completion of the fifth audit cycle.

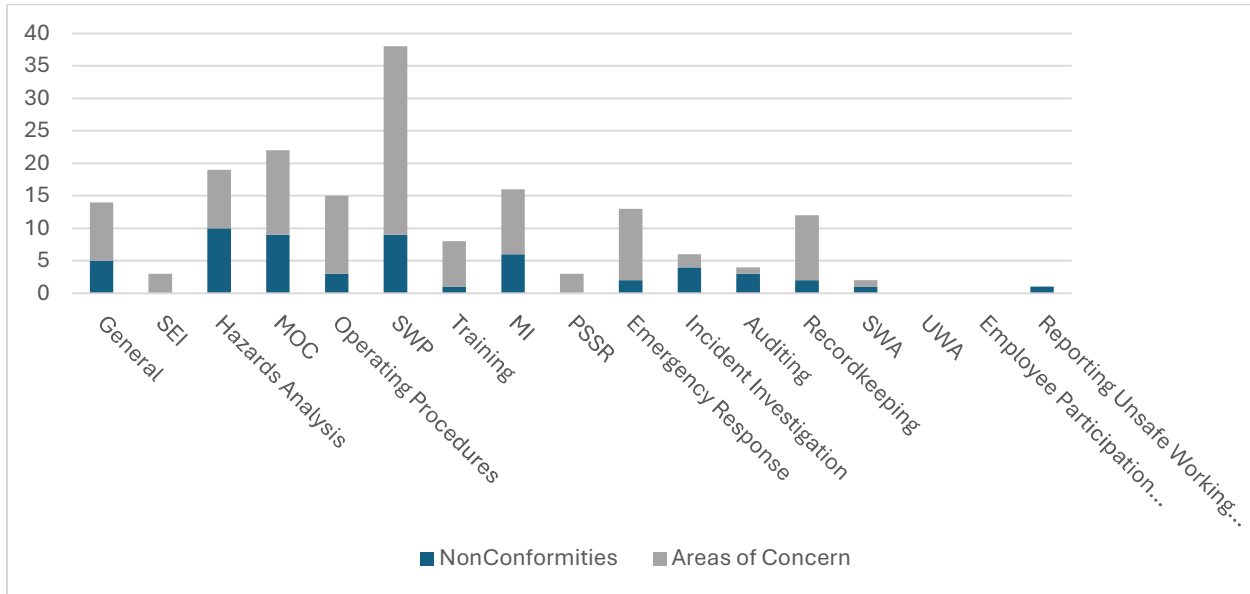
3.2 SEMS Audit Data by Classification Type

For the 36 SEMS audit reports submitted to MMA during the fifth audit cycle (2023–2025), 56 Non-Conformances and 120 Areas of Concern were identified. Throughout this section, the term **Deficiency** refers collectively to both Non-Conformances and Areas of Concern.

Five SEMS elements accounted for approximately 63% of all deficiencies identified during the fifth audit cycle:

- Safe Work Practices
- Management of Change
- Hazards Analysis
- Operating Procedures
- Assurance of Quality and Mechanical Integrity

Figure 34: SEMS Elements by Finding Type

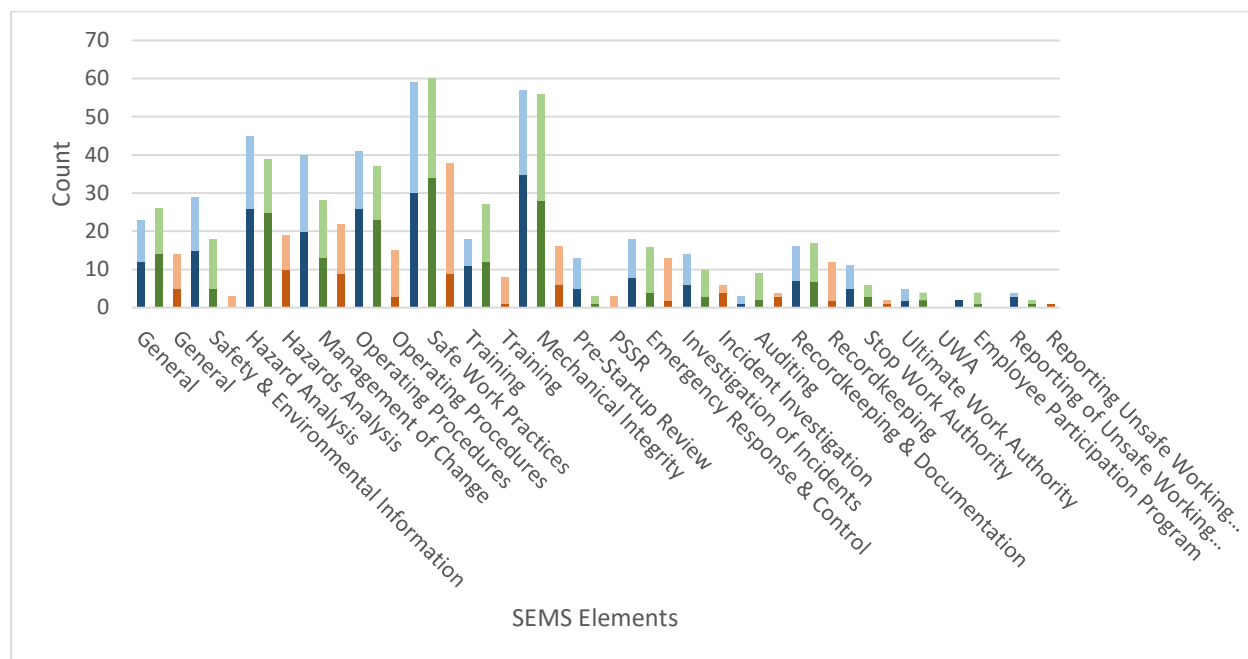


Columns show the number of Non-Conformances and Areas of Concern identified for each SEMS element in audit reports submitted during the fifth audit cycle (2023–2025).

Figure 35: SEMS Elements by Finding Type Summary

Element	Non-Conformance	Area of Concert
General	5	9
Safety and Environmental Information	0	3
Hazard Analysis	10	9
Management of Change	9	13
Operating Procedures	3	12
Safe Work Practices	9	29
Training	1	7
Mechanical Integrity	6	10
Pre-Startup Review	0	3
Emergency Response and Control	2	11
Investigation of Incidents	4	2
Auditing	3	1
Recordkeeping and Documentation	2	10
Stop Work Authority	1	1
Ultimate Work Authority	0	0
Employee Participation Program	0	0
Reporting of Unsafe Working Conditions	1	0

Figure 36: Total Findings by SEMS Element Across Audit Cycles



Columns show the total findings identified for each SEMS element during the 2017–2019, 2020–2022, and 2023–2025 audit cycles. Findings are separated into Non-Conformances and Areas of Concern.

2017-2019	Non-Conformance	Area of Concern
2020-2022	Non-Conformance	Area of Concern
2023-2025	Non-Conformance	Area of Concern

3.3 SEMS Audit Data by SEMS Maturity

As stated previously, the term **Deficiency** is used throughout this section to collectively describe Non-Conformances and Areas of Concern. Deficiencies typically represent either less-than-satisfactory fulfillment of a requirement or a requirement that is only partially fulfilled and could result in a Non-Conformance if additional actions are not taken.

To better understand where deficiencies occurred within the implementation of a SEMS program, a work group of **Subject Matter Experts (SME)** reviewed each deficiency identified during the fifth audit cycle and assigned it to one of four SEMS maturity phases.

The maturity phases used in the analysis were:

- **Establish** – Do you say what you do?
- **Implement** – Do you do what you say?
- **Document** – Do you document what you do, update documents appropriately, and provide access to the appropriate personnel?
- **Maintain** – Do you confirm your SEMS is functioning as designed and review and act when required?

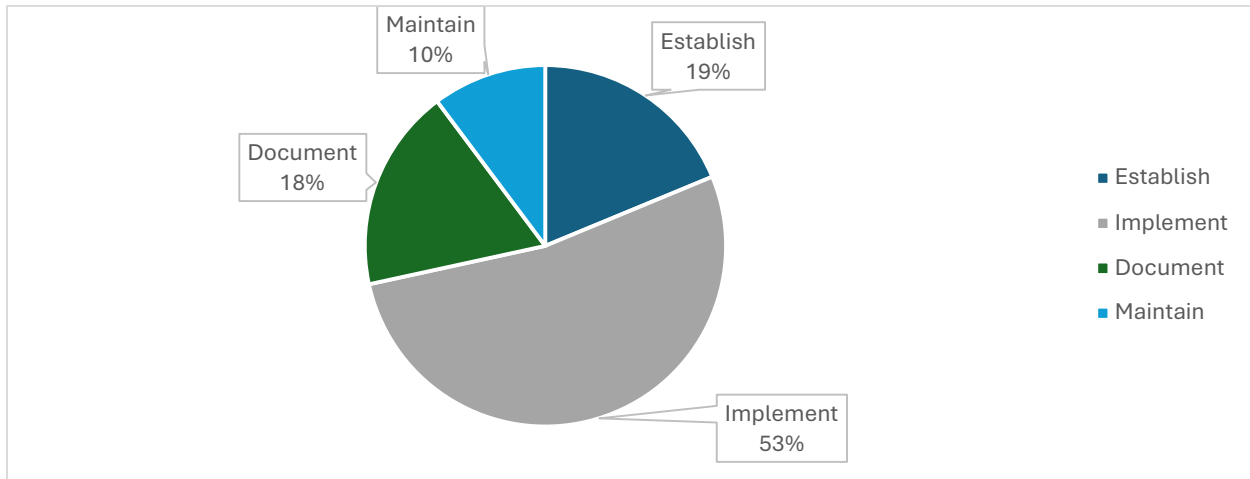
Examples of deficiencies associated with each maturity phase include:

- **Establish:** Missing processes, incomplete requirements, or unclear expectations.
- **Implement:** Work processes not consistently followed, incomplete training, or inconsistent execution of established requirements.

- **Document:** Outdated, inaccessible, incomplete, or illegible documents and records.
- **Maintain:** Reviews not completed as required or follow-up actions not completed.

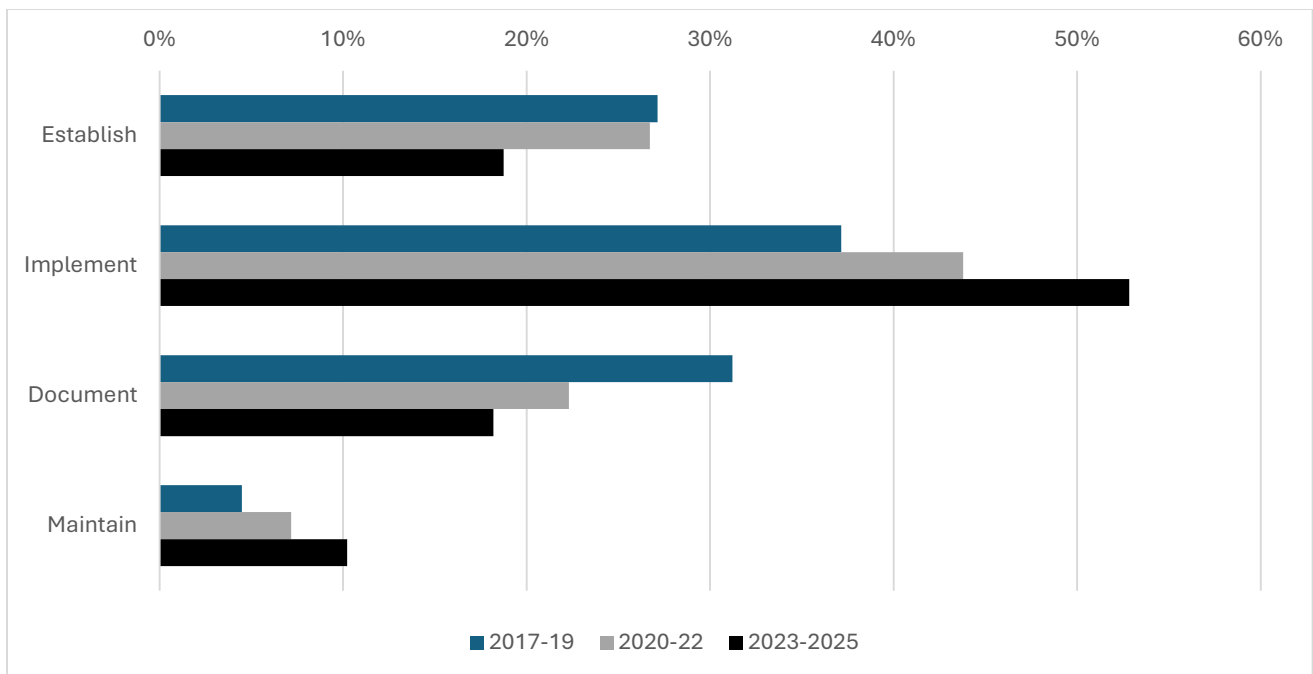
If a deficiency could reasonably be assigned to more than one maturity phase, the earliest phase in the maturity sequence was selected.

Figure 37: Distribution of Deficiencies by SEMS Maturity Phase (2023–2025)



Pie slices show the distribution of deficiencies among the Establish, Implement, Document, and Maintain maturity phases during the fifth audit cycle (2023–2025).

Figure 38: Percentage of Deficiencies by SEMS Maturity Phase (3rd Through 5th Audit Cycles)



Columns show the percentage of deficiencies assigned to each SEMS maturity phase during the third (2017–2019), fourth (2020–2022), and fifth (2023–2025) audit cycles.

Analysis of the fifth audit cycle data identified:

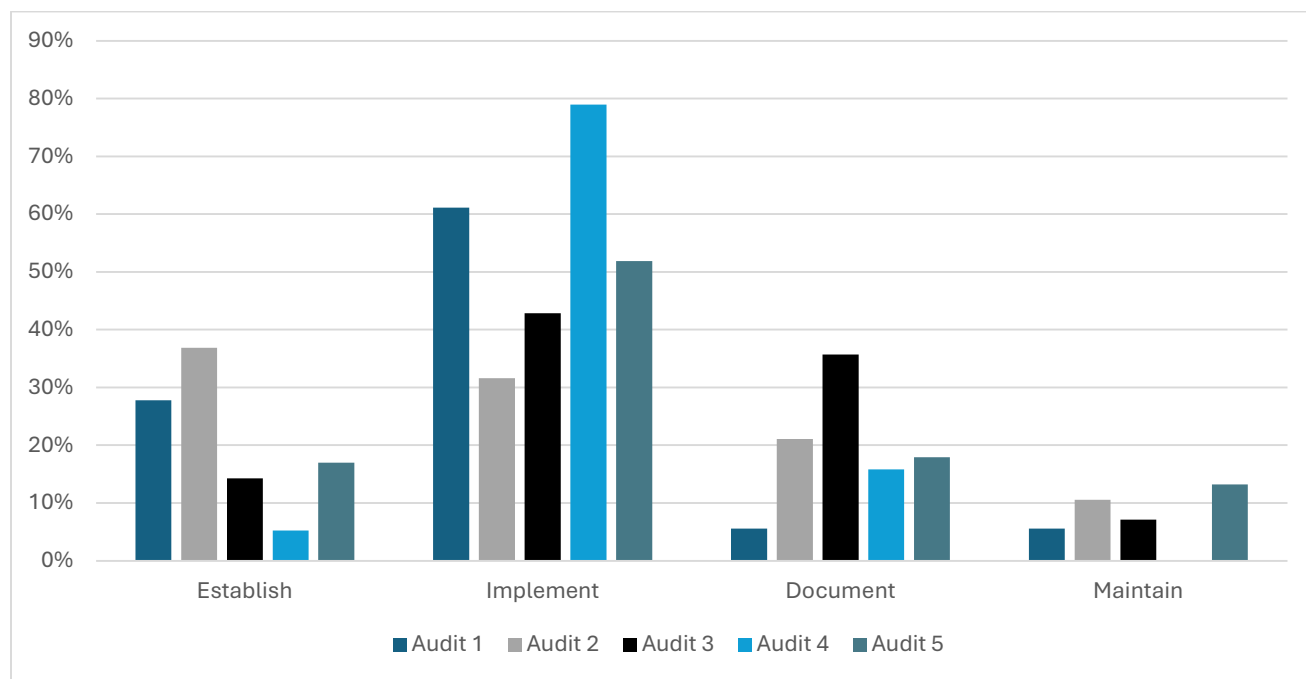
- **19%** of deficiencies in the **Establish** phase.
- **53%** of deficiencies in the **Implement** phase.
- **18%** of deficiencies in the **Document** phase.
- **10%** of deficiencies in the **Maintain** phase.

The distribution of deficiencies across the SEMS maturity phases differed from the distributions observed during the third and fourth audit cycles. During the fifth audit cycle, a greater percentage of deficiencies were assigned to the Implement phase, while lower percentages were assigned to the Establish and Document phases. The Maintain phase represented the smallest proportion of deficiencies in all three audit cycles.

Analysis by Audit Cycle

The work group extended the analysis by using BSEE data to categorize maturity-phase findings according to each operator's audit count. Because operators entered the SEMS audit process at different times, their level of audit experience varies: some were completing their first audit, while others had completed all five cycles.

Figure 39: Percentage of Deficiencies by SEMS Maturity Phase and Audit Count



Columns show the percentage of deficiencies assigned to each SEMS maturity phase for operators completing their first, second, third, fourth, or fifth SEMS audit.

Analysis of the fifth audit cycle data identified differences in the distribution of deficiencies across the SEMS maturity phases based on the audit count being completed by the operator. Operators who have completed more audits generally exhibited a greater proportion of deficiencies associated with the Document and Maintain phases than operators completing with a smaller audit count.

3.4 SEMS Audits – Insights

Five SEMS elements accounted for approximately 63% of all deficiencies identified during the fifth audit cycle. Additional review was conducted to identify recurring themes within selected SEMS elements.

Management of Change

Management of Change (MOC) accounted for 22 deficiencies during the fifth audit cycle. These deficiencies represented approximately 13% of all deficiencies identified during the cycle. The most frequently assigned maturity phase was Implement, followed by Establish. MOC was among the five most frequently cited SEMS elements during the third, fourth, and fifth Audit Cycles.

Review of the MOC deficiencies identified several recurring themes:

- 32% involved MOCs that were not consistently initiated, completed, or approved before changes were implemented.
- 18% involved temporary MOC controls that lacked defined duration limits, expiration dates, revalidation requirements, extension criteria, or escalation processes.
- 18% involved personnel or organizational changes that were not consistently evaluated through the MOC process.
- 18% involved incomplete communication or training associated with a change.
- 27% involved incomplete MOC documentation, workflow quality issues, inadequate change evaluations, missing project records, ineffective closure processes, or deficiencies in tracking MOC completion.

Safe Work Practices and Contractor Selection

Safe Work Practices and Contractor Selection accounted for 38 deficiencies, representing approximately 22% of all deficiencies identified during the fifth audit cycle. This SEMS element accounted for more deficiencies than any other element during the cycle and was also among the most frequently cited elements during the third and fourth audit cycles. The most frequently assigned maturity phase was Implement.

Review of these deficiencies identified several recurring themes:

- 50% involved contractor selection and performance evaluation.
- 53% involved safe work instructions, including housekeeping, open holes and barricades, prevention of dropped objects, and tool use.
- 32% involved hazardous materials, including storage, labeling, and Safety Data Sheet (SDS) availability.
- 5% involved incorrect or unavailable personal protective equipment (PPE).

Assurance of Quality and Mechanical Integrity of Critical Equipment

Assurance of Quality and Mechanical Integrity accounted for 16 deficiencies, representing approximately 9% of all deficiencies identified during the fifth audit cycle. The most frequently assigned maturity phases were Implement and Maintain, followed by Document. Assurance of Quality and Mechanical Integrity was among the five most frequently cited SEMS elements during each of the third, fourth, and fifth audit cycles.

Review of these deficiencies identified several recurring themes:

- 69% involved maintenance, inspection, and action-tracking gaps.
- 58% involved documentation and recordkeeping issues.
- 38% involved equipment condition and corrosion concerns.
- 65% involved procedure and program implementation gaps.