

DATA SERIES

Safety performance indicators – process safety events – 2022 data

EXECUTIVE SUMMARY

About IOGP Safety Data

The International Association of Oil and Gas Producers (IOGP) has been collecting safety incident data from its Member Companies globally since 1985. The data collected are entered into the IOGP safety database, which is the largest database of safety performance in the exploration and production (E&P) industry.

The principal purpose of the data collection and analysis is to record the global safety performance of the contributing IOGP Member Companies on an annual basis. The submission of data is voluntary and is not mandated by IOGP Membership. The annual reports provide trend analysis, benchmarking and the identification of areas and activities on which efforts should be focused to bring about the greatest improvements in performance. Countries and companies that are subject to international sanctions are not featured in this year's Report.

Process safety event (PSE) data

IOGP Report 456 - *Process Safety - Recommended Practice on Key Performance Indicators* was last revised in November 2018. It provides guidance for upstream companies on Key Performance Indicators (KPI) used in managing process safety for the prevention of unplanned and uncontrolled loss of containment events. It builds on the framework and definitions included in the API Recommended Practice (RP) 754 (revised in April 2016), Process Safety Indicators for the Refining and Petrochemical Industries, on process safety indicators, with specific emphasis on their application to upstream oil and gas activities.

It is noted that IOGP published the 3rd edition of IOGP Report 456 - *Process Safety - Recommended Practice on Key Performance Indicators* in May 2023. For IOGP data collection reporting process this revised version will apply to PSEs recorded from 2023 onwards.

2022p - *Process safety events – 2022 data*, is a further step towards making PSE data and associated KPIs available to stakeholders. PSE data presented in report 2022p are based on voluntary submissions from participating IOGP Member Companies and are not necessarily representative of the entire upstream oil and gas industry.

IOGP started a pilot process of data collection in 2010. Data for the years 2012-2021 were previously published in Report 2021p. The collection of PSE data has progressed, with the number of Member Companies reporting increasing from 26 in 2011 to 47 in 2022.

The Process Safety Events (PSE) data presented in the report are based on the numbers of Tier 1 and Tier 2 PSE reported by participating IOGP Member Companies, broken down for:

- onshore and offshore
- drilling and production
- activities
- consequences
- material released.

The Tier 1 and Tier 2 data presented have been normalized against reported work hours associated with drilling and production activities to provide PSE rates.

In 2022, four fatal incidents resulted in four workforce fatalities.



The top ten causal factors assigned to Tier 1 PSEs in 2022, compared with the previous eight years, are shown below. Five of the causal factors were in the top ten for each of the nine years shown.

| Causal factors assigned to Tier 1 PSE | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| PROCESS (CONDITIONS) : Tools, Equipment, Materials and Products : Inadequate maintenance/inspection/testing | 30 | 50 | 49 | 60 | 65 | 58 | 68 | 47 | 54 |
| PROCESS (CONDITIONS) : Tools, Equipment, Materials and Products : Inadequate design/specification/management of change | 22 | 55 | 42 | 42 | 42 | 63 | 27 | 34 | 50 |
| PROCESS (CONDITIONS) : Tools, Equipment, Materials and Products : Inadequate/defective tools/equipment/materials/products | 31 | 32 | 30 | 39 | 48 | 44 | 24 | 63 | 37 |
| PROCESS (CONDITIONS) : Organizational : Inadequate work standards/procedures | 18 | 37 | 44 | 30 | 32 | 40 | 22 | 25 | 28 |
| PEOPLE (ACTS) : Following Procedures : Deviation unintentional (by individual or group) | 8 | 29 | 13 | 23 | 8 | 33 | 11 | 15 | 26 |
| PROCESS (CONDITIONS) : Organizational : Inadequate hazard identification or risk assessment | 11 | 41 | 40 | 47 | 33 | 46 | 22 | 28 | 24 |
| PROCESS (CONDITIONS) : Protective Systems : Inadequate/defective warning systems/safety devices | 10 | 27 | 20 | 10 | 9 | 17 | 18 | 14 | 20 |
| PROCESS (CONDITIONS) : Protective Systems : Inadequate/defective guards or protective barriers | 9 | 23 | 26 | 13 | 20 | 14 | 16 | 8 | 16 |
| PEOPLE (ACTS) : Inattention/Lack of Awareness : Lack of attention/distracted by other concerns/stress | 14 | 16 | 7 | 7 | 10 | 7 | 6 | 5 | 13 |
| PROCESS (CONDITIONS) : Work Place Hazards : Storms or acts of nature | 1 | 9 | 14 | 3 | 9 | 11 | 3 | 17 | 11 |
| PROCESS (CONDITIONS) : Organizational : Inadequate communication | 13 | 15 | 17 | 9 | 11 | 15 | 10 | 10 | 11 |

Tier 1 PSE descriptions, as well as fatal incident and high potential event descriptions that are process safety related or Process Safety Events from the Safety performance indicators report, are in 2022pfh - Tier 1 PSE, Fatal incident and high potential event reports, and in a searchable format at <https://data.iogp.org>. The intention is to enable feedback of learnings from events and to help organizations to categorize process safety events.

For a full digital version, and to download the safety performance – process safety events report, visit IOGP’s data website at: <https://data.iogp.org>

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