Advancing environmental
and social performance
across oil and gas

Module 5
Safety, Health
and Security

www.ipieca.org
Legal note

This voluntary guidance document (Guidance) is designed to serve as a resource for interested companies; the indicators and information referenced in this work do not establish an industry standard as to the nature of a company’s public reporting practice. The recommendations in this Guidance on how to report on a particular issue are addressed to those companies who choose to voluntarily include that issue in their sustainability reporting and terms such as ‘the reporting company should …’ are to be understood in this sense.

The terms and definitions used in this document are not necessarily the same as terms and definitions used in various statutes, rules, codes or other legal documents. Users and readers of this document should refer to relevant legal sources or consult their own legal counsel for explanations as to how the terms and definitions used in this document may differ from the legal terms and definitions (e.g. spills and hazardous wastes) used in their particular areas of operation. Anything in this document regarding voluntary reporting of indicators is not intended to imply that any of the indicators are required to be reported under any national, local or other law. Furthermore, it is not intended to serve as a substitute for applicable public reporting requirements and regulations. Any company reporter that has a question as to whether or not reports that follow the information contained herein will meet any specific reporting requirements applicable to their particular operations should consult with the reporter's own legal counsel.

A cautionary statement regarding performance indicators

Aggregated, company-level, non-financial performance data, developed using the indicators in this Guidance, can be informative for comparing relative performance among different companies, such as benchmarking safety incident statistics across the oil and gas industry. A company can use such comparisons to evaluate its own performance relative to peers, and identify areas for potential improvement. However, limitations to comparability exist due to various factors including the different methods companies may use to measure, normalize and report specific indicators. Although efforts have been made throughout the Guidance to improve comparability, report users are advised to exercise caution when using data from sustainability reports to compare performance. For example, comparing two companies that report greenhouse gas emissions on a different basis (e.g. equity share vs. operated) could be misleading regarding actual performance. Specific indicators from similar operations can sometimes be usefully compared to help performance management. However, the company-level, aggregate data typically reported in sustainability reports may not provide adequate comparability for some metrics. Where this Guidance mentions comparability, it is not intended to imply that data in sustainability reports, and therefore companies' performance, are always directly comparable.

Furthermore and separate from company sustainability reporting, industry associations and others may choose to implement specific performance benchmarking studies, which may build upon the indicators in this Guidance.

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IOGP Report 437

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Structure of the guidance

The Guidance in its entirety is made up of the following inter-connected modules. All modules, except for ‘Reporting process’ are accompanied by performance indicators.

- Reporting process (REP)
- Governance and business ethics (GOV)
- Climate change and energy (CCE)
- Environment (ENV)
- Safety, health and security (SHS)
- Social (SOC)

The REP module provides good practice guidance on how and what to report. The guidance covers important processes such as stakeholder engagement, determining materiality, developing narrative and reporting indicators.

Each of the other five modules introduces a set of related sustainability issues and provide guidance on developing your narrative supported by relevant industry specific indicators on these issues. In general terms, depending on materiality, your report’s narrative should provide an overview of:

- how you manage each issue;
- your overall approach to the issue and any policies you have in place;
- your management of risk and opportunity;
- key initiatives and actions;
- how you measure and monitor the issue; and
- how you review and learn in pursuit of continuous improvement.
KEY POINTS TO ADDRESS

The key points listed in this section have been developed through input from external stakeholders and industry subject matter experts. The overarching points are intended to inform your narrative, supported by the data and facts provided by the indicators that follow. Unlike indicators that primarily aim to establish consistency of reporting, these points provide an opportunity for your narrative to convey your company’s individual characteristics and unique culture that underpins how you address impacts and contribute to sustainability.

INDICATORS

To support your narrative, informed by the key points above, you should report on any or all of the suggested indicators, based on your material issues. Each indicator is defined by its Scope and its core and additional Elements, supported by any specific definitions of terms. A set of general Guidance definitions are provided in the Glossary.

INDICATOR DETAILS

<table>
<thead>
<tr>
<th>Why this matters</th>
<th>Summarizes why this indicator may be important to you, and what the indicator is seeking to show.</th>
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<tr>
<td>Scope</td>
<td>Describes the indicator and its associated reporting elements, in terms of their applicability and relevance; a separate list of ‘out of scope’ aspects may also be provided.</td>
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<tr>
<td>Basis (if needed)</td>
<td>For relevant indicators, this defines measurement units, as well as data consolidation / reporting boundary considerations.</td>
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<td>Definition of terms (if needed)</td>
<td>Offers definitions that clarify terms specific to the indicator. More general terms are included in the Glossary.</td>
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<tr>
<td>Elements</td>
<td>See Step 5 in ‘How to report’ for how we number and summarize reporting elements.</td>
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Website and Supporting Materials (including the Glossary)

All modules of the Guidance can be downloaded from our website: www.sustainability-reporting.org. In addition to module downloads, the website also contains supporting materials. This includes the Glossary for the Guidance, which helps define many of the common terms used throughout all of the modules. In addition a useful list of Measurement Units and Conversion Factors is also available as a download.
The oil and gas industry has a long history of addressing safety, health and security risks. While significant progress has been made to reduce the number of harmful incidents, potentially damaging events still occur. Safety, health and security protection therefore remains a material issue for reporting.

Encouraging participation in safe, healthy and secure practices within the workplace promotes greater hazard awareness and changes the way people approach risk. Companies also recognize the value of raising awareness in local communities and with other stakeholders. Prevention of illness and promotion of healthy lifestyles provide lasting benefits for the workforce, their families and the general public.

While the most common types of safety incidents occur in the workplace, those involving transport result in a high proportion of fatalities for the industry. For this reason, we have included a new indicator on land, air and marine transport safety.

Loss of control or containment at facilities such as well sites, processing plants, refineries and petrochemical plants can potentially result in serious harm to people and the environment. The oil and gas industry has established robust systems to address process safety risks with the aim of preventing such events. To monitor the performance of these systems, we have continued to evolve the process safety indicator introduced in 2010 and in 2020 we include additional reporting elements on well control, risk assessment and behavioural factors.

Product stewardship provides well-established industry practice to assess the health, safety and environmental risks of new fuels, chemicals and other products and to provide up-to-date information on existing products. Reporting on this topic is likely to remain material for downstream and oilfield service businesses that supply fuels, lubricants, chemicals or polymers.
Security threats, to individuals, facilities and computer-based infrastructure are becoming more frequent and sophisticated. We have introduced a new indicator on security risk management to address this. In addition, indicator SOC-3 in Module 6 Social addresses the potential effects of security activities on human rights such as the rights of demonstrators, local residents and vulnerable groups.

The reporting guidance and indicators aim to strike a balance between providing quantitative ‘lagging’ data on the outcomes and consequences of safety, health and security risks, and quantitative and qualitative ‘leading’ measures that monitor the systems a company has in place to continuously improve performance and reduce risk.
Key points to address

A. Your overall approach to managing safety, health and security risks, including planned initiatives and measures to reduce risk and improve performance. Include management systems, auditing and assurance – as well as efforts to enhance leadership regarding these issues within your organization.

B. In addition to reporting on Module 2 Governance and business ethics, address specific aspects of your governance, policies and management systems that address safety, health and security issues. This can include crisis management, emergency preparedness and business continuity plans to respond to major incidents, epidemics or terrorist attacks. IPIECA, IOGP, API and ISO have published management system recommended practices that address safety, health and security risks [3–6].

C. Any safety, health and security event that had a significant impact during the reporting period, such as fatalities or extensive environmental / socio-economic impact, including outcomes of investigations and lessons learned to prevent recurrence.

D. Recent or planned enhancements, initiatives and campaigns by your leadership to improve safety, health and security performance. You can include process improvements, investments in equipment to protect individuals and asset integrity, as well as human factors initiatives designed to positively influence workforce behaviours and overall organizational culture.

E. Robust safety, health and security management systems rely on the cycle of continuous improvement. To support this, include any specific improvement plans, commitments or initiatives and describe how you monitor performance and the actions you have taken to achieve progress.

F. While safety, health and security reporting is predominately associated with operations, projects, products and services, you should also include information on how you manage risks as they relate to, for example, non-operated joint ventures, contractors, suppliers and local communities.

G. The processes you use in operations and projects that make substantial use of contracted resources. This can include how your management system addresses areas such as training and skills assessment, control of work and protective equipment, and performance review of contracted activities and personnel.

H. When discussing your workforce, particularly in quantitative terms, clarify the extent to which your data includes contractors as well as your employees. The guidance in Module 1 Reporting process, on developing a reporting boundary, can help you clarify your reporting scope.

I. Systems to manage safety, health and security risks related to the supply chain of your products, such as fuels, lubricants, plastics and other chemicals. You can refer to applicable regulatory frameworks as well as specific internal processes that provide product stewardship controls, such as product registration, data sheets and labelling provisions that provide transparency and confidence to customers when transporting, handling or using sold products. For service suppliers / contractors, you can describe risks and management requirements as they relate to materials such as drilling fluids and chemicals. Linked to ENV-7 in Module 4 Environment, you can provide information on how you are helping customers to reduce, reuse or recycle your non-fuel products manufactured from hydrocarbons, such as lubricants and plastics.
J. Your capability and processes to control process safety risks within your own operations, as well as information on how you apply this to non-operated joint ventures and contracted assets. This can include activities, such as drilling or hydraulic fracturing operations, where companies have put specific measures in place to prevent adverse events. Apart from the potential to cause direct harm to people, there are clear links between process safety and other issues / indicators in the Guidance, including environmental and socio-economic impacts, for example, from an oil spill (also see indicator ENV-6 in Module 4 Environment).

To support your narrative, informed by these key points, you should report on any or all of the following indicators, based on your material issues.
Module 5
Safety, health and security

**SHS-1**
Safety, health and security engagement

**WHY THIS MATTERS**
Effective programmes bring together employees from all levels of a company – from managers to operators – to build a culture that recognises risks and values cooperation. Extending participation to contractors and other stakeholders, including local communities, schools, suppliers, customers and local authorities, will yield mutual benefits to reduce risks further. This indicator conveys your approach to strengthening risk awareness and management through constructive engagement with your workforce and other stakeholders on safety, health and security issues.

**SCOPE**
Describe the structure of your safety, health and security programmes and the processes you have in place to enable active involvement and consultations on healthy and secure working environments and good safety practices. You should include a description of how you integrate these programmes or processes into your overall management system, as well as how you enable participation at all levels.

The participation programmes and processes you might include could be:

- Policy and programme development, deployment and improvement.
- Safety, health and security orientation and training.
- Mechanisms for management and leadership to communicate with the workforce and other stakeholders to identify concerns and participate in initiatives to improve safety, health and security.
- Consultation and feedback mechanisms to improve the effectiveness of your safety, health and security measures, such as workforce health and safety steering committees, management of change consultation, safety and health culture surveys, community engagement events, or grievance mechanisms.
- Performance measurement reviews at regular workforce safety meetings that help you track progress towards continuous improvement.
- Workforce participation and representation in operational risk assessments.
- Regular joint participation of your workers and managers in safety, health and security processes, such as proactive risk reporting, site inspections, audits and activity observations, as well as interventions. This should include the steps you take to include all workers, such as part-time employees, home-workers and contractors, to avoid divisions, discrimination or exclusion.
- Formal meetings with local or national authorities, safety, health and security specialist organizations, unions or academic / international institutions to improve processes and performance. This could include forums to address the UN Sustainable Development Goals, such as Good Health and Wellbeing (Goal 3).
INDICATORS

SHS-1 Safety, health and security engagement
SHS-2 Workforce and community health
SHS-3 Occupational injury and illness incidents
SHS-4 Transport safety
SHS-5 Product stewardship
SHS-6 Process safety
SHS-7 Security risk management

BASIS

This leading indicator is primarily qualitative. If available, quantitative data on the extent of your engagement programmes and initiatives may be included and consolidated within your reporting boundary using the ‘workforce approach’ (see Module 1 Reporting process for more on reporting boundaries).

Contractors are often responsible for their own safety and health participation programmes. You should consider describing the way in which your programmes interface with those of your contractors and business partners working on your sites.

REPORTING ELEMENTS

CORE

C1 Describe your approach to managing workforce participation in safety, health and security.
C2 Outline your overall approach to safety, health and security training for the employees and contractors that make up your workforce. Include information on whether training initiatives are extended to other parties, such as non-operated joint ventures, business partners, suppliers, security forces, public emergency response groups, consumers and local communities.
C3 Discuss the coverage of your safety, health and security engagement programmes and the extent to which you include contractors.

ADDITIONAL

A1 Provide case studies on specific activities at your facilities that illustrate how you apply your management approach. For example, local workforce engagement programmes, verification processes, outcomes or actions based on assessment of results.
A2 Describe your efforts and initiatives to work with external stakeholders to improve safety, health and security, supported by case studies or examples.
A3 Summarize your participation in national or international forums to improve safety, health and security practices.
SHS-2
Workforce and community health

WHY THIS MATTERS
Proactive assessment and management of health risks and opportunities can improve workforce satisfaction and business performance. Extending health programmes to workforce families, the local community and other stakeholders promotes good health and wellbeing and has mutual long-term benefits in managing health risks, such as infectious diseases. This indicator outlines your programmes and processes to address health risks and create opportunities to promote good health and wellbeing in your workforce and the wider community.

SCOPE
Processes and indicators that specifically support health are described in the IOGP-IPIECA guides Health management in the oil and gas industry [5] and Health performance indicators: A guide for the oil and gas industry [6]. Key aspects covered by these documents include:

- Health risk assessments (HRAs) and related tools to help your health protection planning when designing new projects, products and operations or modifying existing processes, products or operations.
- Health risk mitigation and management, which covers risks such as fitness for task, worker welfare and wellbeing, occupational health, food and water safety, fatigue, stress, substance abuse, pandemics and infectious diseases, as well as environmental and security factors.
- Health surveillance, based on methodologies, such as hearing and blood tests, to check for impacts from an exposure to individuals.
- Healthcare delivery, including medical emergency management, infrastructure and response planning.
- Health reporting and records management, which outlines the steps you take to ensure documents, procedures and records are up to date, accessible and meet quality, confidentiality, legal compliance and retention standards.
- Social responsibility and shared values, and general promotion of good public health.
- Health performance indicators (HPIs), covering health management, leading indicators and lagging indicators.

Engaging your workforce is an effective way of understanding the opportunities that exist to maintain and improve health (see also SHS-1).
### BASIS

The indicator is primarily qualitative but can be supported with quantitative occupational illness incident rates as reported in indicator SHS-3. Workforce health issues vary widely by location, so local case studies can help you demonstrate how you manage these issues.

You should consolidate quantitative workforce data within your reporting boundary using the 'workforce approach' (see Module 1 *Reporting process* for more on reporting boundaries). You should determine significance (see *Glossary*) when considering reporting health issues by type or location.

### REPORTING ELEMENTS

#### CORE

| C1 | Describe your processes and programmes for identifying and addressing significant workforce health issues at the local, regional and global level, together with any results and plans. |
| C2 | Describe aspects of your management systems that are specific to health and any improvements you have planned or made. |
| C3 | Describe your proactive wellness initiatives that encourage the adoption of healthier lifestyles, including nutrition, fitness and awareness of health risk factors. |

#### ADDITIONAL

| A1 | Outline your measures and strategies to extend health initiatives to local communities and other stakeholders. |
| A2 | Provide case studies of health impact assessments. |
| A3 | Describe your health measures to prevent, reduce and manage infectious diseases, both within your workforce and within the local community affected by your activities, including voluntary testing, treatment, counselling and return to work. |
| A4 | Describe your health training programmes for managers and workers, including programmes that address diversity, cultural and personal beliefs. |
| A5 | Discuss the main health challenges you face at different operating locations, including how you address local health issues, such as access to clean water and sanitation. |
Module 5
Safety, health and security

**SHS-3**

**Occupational injury and illness incidents**

**WHY THIS MATTERS**

Workforce occupational incident injury and illness rates are well-established industry metrics that enable evaluation of health and safety performance, including benchmarking. Incident reporting and investigation provides learning opportunities to prevent recurrence and promote improvement in management systems. This indicator reports your data on workforce injuries or illness caused by work-related incidents and offers an opportunity for you to discuss how you learn from incidents and improve performance.

**SCOPE**

A number of organizations have published guidelines for reporting injuries and illnesses, including API, IOGP, the U.S. Occupational Safety and Health Administration (OSHA) [7] and national regulatory bodies. While broadly aligned, there are some differences in definitions and exemptions. You should, therefore, clearly state the reporting guidelines that you are using. API’s occupational safety and health standards are updated regularly, including the 2019 fourth edition of Recommended Practice 54 (RP 54) *Occupational Safety and Health for Oil and Gas Well Drilling and Servicing Operations* [8]. IOGP’s *Safety data reporting user guide* [9] is updated annually and is widely used by upstream oil and gas companies for injury reporting.

The IOGP and OSHA guidelines provide details on how a work-related incident is determined and outline the appropriate categorization of incident severity, including criteria such as medical treatment beyond first aid, restricted duty, lost time or death. It is important for overall reporting integrity that companies report injury and illness classifications accurately and consistently.

A work-related incident, such as an event or exposure, is recordable if it either caused or contributed to:

- a new injury or illness; or
- an exacerbation of a pre-existing condition.

The guidelines provide a list of exclusions that are not considered work-related.

If incidents involving your operations result in fatalities or serious injuries to third parties, you should report these events separately.

You should report total recordable injury and illness, lost time injury and illness and fatal accident rates separately for company employees and contracted workers. You should also report injury and illness rates separately. You may include related data, such as combined rates for the total workforce, numbers of incidents and actual hours worked.

You should set your data within the appropriate context, which can include interpretation of incident trends, or your plans to achieve management system objectives.

You should describe the impacts, actions and lessons learned from significant incidents (which are often referred to as ‘major’ incidents). Your description should provide an appropriate level of information that takes into account possible legal and confidentiality constraints. Guidance on the term ‘significance’ is provided in the *Glossary*. Such
incidents are defined by IOGP as ‘significant incidents causing, or having the potential to cause, multiple serious injuries or fatalities.

We also encourage you to discuss how lessons learned from investigations are shared, as appropriate in industry working groups, benchmarking, or other groups that share good practices. This can include lessons learned from high potential events, which were near-miss events that could have resulted in a fatality in other circumstances.

You can also describe how your lessons learned on significant incidents and high potential incidents are shared inside your company and externally for the purpose of learning to avoid recurrence.

Reporting incidents provides ‘lagging’ measures of safety and health performance. You should consider establishing and reporting appropriate ‘leading’ safety measures that relate to your activities and people’s behaviours. Leading measures include safety management processes such as training, auditing and engagement, observations and interventions (see SHS-1). Leading measures include near-miss events that did not result in injury or illness. Investigating and reporting of near-miss, and high potential events can provide insights and learning of equivalent value when subjected to the same level of investigation as work-related incidents that had harmful consequences.

BASIS

The indicator is quantitative and reportable at a global level, and may be supported by qualitative descriptions of incidents, responses and plans. You should consolidate quantitative workforce injury and illness data within your reporting boundary using the ‘workforce approach’ (see Module 1 Reporting process for more on reporting boundaries). The workforce includes both your employees and contractors.

You should clearly state your calculation method for determining frequencies and rates by indicating the number of workhours employed as the normalization factor. The recommended factors are those defined by IOGP: per one million hours worked for injury or illness frequencies, and per 100 million hours worked for fatality rates. Companies may also use common OSHA incident reporting factors, which are per 200,000 hours worked for injury or illness frequencies, and per 100 million hours worked for fatality rates. You should clearly state your basis for calculating frequencies and rates.
REPORTING ELEMENTS

CORE

C1 Report your work-related injuries separately for employees and contractors, including:
• total recordable injury frequency;
• lost time injury frequency;
• number of fatalities (excluding illness fatalities);
• fatal accident rate (excluding illness fatalities); and
• fatal incident rate.

C2 Describe any significant incidents that occurred during your reporting year, detailing the impact and actions taken in response.

C3 Describe any initiatives to improve your safety performance.

C4 Describe safety incident trends and the most common causes of work-related incidents together with any initiatives you have introduced to address these causes.

ADDITIONAL

A1 Report your occupational illnesses separately for employees and / or contractors:
• Total recordable illness frequency
• Lost time illness frequency
• Number of illness fatalities

A2 Describe high potential events, including how you have shared lessons learned.

A3 Discuss whether you have implemented company-wide life-saving rules, or equivalent, and how you have communicated and monitored those rules.

A4 Describe how you apply leading health and safety measures, which may include:
• reporting and analysis of near-miss events, including first aid and ‘no-treatment’ events;
• leading indicators, hazard awareness and proactive hazard reporting programmes, such as peer-to-peer observations / interventions and feedback sessions, to demonstrate workforce engagement and the maturity of your safety culture;
• safety management system audits and site / activity assessments that review the design and effectiveness of your system and improvement plans;
• incident investigation completion and corrective action closure;
• workplace job safety / hazard analysis completed; and
• training to improve safety and health performance (including activities designed to raise awareness and improve competency of the workforce).
INDICATORS

SHS-1 Safety, health and security engagement

SHS-2 Workforce and community health

SHS-3 Occupational injury and illness incidents

SHS-4 Transport safety

SHS-5 Product stewardship

SHS-6 Process safety

SHS-7 Security risk management

SUSTAINABILITY REPORTING GUIDANCE FOR THE OIL AND GAS INDUSTRY

SHS-4

Transport safety

WHY THIS MATTERS

Management practices and performance on transport safety address a major cause of fatalities and injuries in the oil and gas industry. This indicator describes your approach and practices for land, air and marine transport safety, supported by quantitative data on incidents.

SCOPE

While it is likely that land transport is a material issue for most companies, we would also encourage you to use this indicator to report on air transport, such as helicopter and fixed-wing aircraft, and marine transport, such as boats, ships or tankers.

IOGP has provided scope definitions and exclusions [10], with examples, for motor vehicle crashes (MVC). You should classify pedestrians struck by a vehicle as land transport incidents and report third party fatalities separately.

IOGP has also defined aviation events for reporting and published Report 590: Aircraft Management Guidelines [11], which documents safety risks related to contracted and non-contracted aviation services, as well as the use of scheduled airlines and non-scheduled aircraft. Report 590 includes management system reporting requirements for accidents and incidents, including near-miss events.

BASIS

The indicator is both quantitative and qualitative. Quantitative incident data should be consolidated within your reporting boundary using the ‘workforce approach’ (see Module 1 Reporting process for more on reporting boundaries). The workforce includes both your employees and contractors. You may support quantitative data with qualitative descriptions of incidents, responses and plans.

For reporting MVCs in line with IOGP guidelines (see References) you should:

• Classify MVCs as catastrophic (fatal), major, serious or other, following IOGP’s definitions, which are consistent with injury categorizations in indicator SHS-3.

IOGP BENCHMARKING ON LAND AND AVIATION TRANSPORTATION

The IOGP Data Series Reports Safety performance indicators – Motor Vehicle Crash Data [12] summarizes analysis of safety MVC data and includes important insights, such as:

• land transport-related incidents have been, historically, the single largest cause of fatalities in IOGP member company operations;
• since 2008 the number of MVC incidents has fallen significantly; and
• not wearing a seatbelt has been the main reason why an MVC resulted in a fatality.

Most of the IOGP participating companies report MVC data, including driving distance, to provide the basis for a normalized MVC rate, supporting the practical nature of this new indicator to track performance improvement over time.

IOGP member companies also benchmark helicopter and fixed wing aircraft accidents resulting in fatalities or injuries, including rates based on hours flown for upstream and downstream operations [13]. The data shows that the highest exposure to the risk of fatality is associated with helicopter passenger transportation, particularly for offshore travel.
• State distances travelled in millions of kilometres, in line with IOGP benchmarking guidelines.

• Determine MVC rates by using the distance travelled per million kilometres as your normalization factor.

• Categorize total catastrophic, major and serious as severe MVCs, and normalize against distance travelled to calculate a severe MVC rate per million kilometres driven as your primary metric for reporting. The ‘other’ MVC metric category tends to provide less reliable data, due to reporting variability. However, you may report on this separately or combined to provide a total MVC rate.

You should report aviation accidents separately for helicopter and fixed-wing aircraft transport. Flight hour data is also recorded to derive normalized rates for the number of accidents per 100,000 flight hours, in line with IOGP benchmarking and aviation industry practice.

REPORTING ELEMENTS

CORE

C1 Describe your risk management approach to transport safety, including policies and practices required within your management systems.

C2 Report the number of work-related workforce (employee or contractor) fatalities caused by transport incidents.

C3 Describe your efforts to engage with external parties, including local communities and authorities, to improve transport safety, including education and training and implementation of new technology.

ADDITIONAL

A1 Report and discuss the number of MVCs by severity. If available, state the total distance driven in kilometres and the normalized severe MVC rate per 100 million kilometres.

A2 Report and discuss the number of aviation events you have recorded and the rate of aviation events per 100,000 flight hours.

A3 Provide qualitative descriptions of any significant incidents that occurred during the reporting year, including your response and plans to prevent recurrence.

A4 State any initiatives to improve transport safety and report on your progress.

A5 Discuss how you apply leading indicators that focus on prevention of transport safety incidents, including aviation and/or shipping near-miss data, and lessons learned.

A6 Outline your participation in significant national or international road or other transport safety initiatives.

A7 Describe new vehicle, vessel or aircraft technologies or specifications that you use to improve transportation safety.

A8 Describe your processes to ensure vehicles, aircraft and vessels are assessed and maintained for safe use.
INDICATORS

SHS-1 Safety, health and security engagement

SHS-2 Workforce and community health

SHS-3 Occupational injury and illness incidents

SHS-4 Transport safety

SHS-5 Product stewardship

SHS-6 Process safety

SHS-7 Security risk management

**SHS-5**

**Product stewardship**

**WHY THIS MATTERS**

For customers and other stakeholders to have confidence in your products, it is important to effectively communicate health, safety and environmental (HSE) hazards and your risk mitigation and control measures. This indicator outlines the systematic processes you have established to identify and manage product HSE issues and your approach to assessing and communicating risks related to use, handling and transport of your products.

**SCOPE**

Industry understanding of product HSE risks is based on experience and knowledge of toxicological and exposure information. Countries regulate and manage these product-related risks differently, which can be challenging for companies that operate across national borders. New products must be assessed before going to market so that a company can recognize and manage any hazards or risks. Safety Data Sheets (SDSs) are a key form of communication to employees and across the supply chain including end users. IPIECA has updated *The application of Globally Harmonized System (GHS) criteria to petroleum substances* [14] to facilitate appropriate and consistent classification and labelling of crude oil and petroleum substances.

This leading indicator applies to risk management of your consumer products, such as fuels, petrochemicals, hydrocarbon-derived polymers and lubricants, as well as products within the industry’s supply chain. HSE risks are present throughout the product lifecycle, from handling and use to recycling or disposal, if applicable. You may also include chemical products supplied by service companies that support your operations.

Product stewardship concerns the processes companies apply to manage the use and transportation of product risks to customers using three elements:

- **Product HSE risk characterisation to identify and document risks and address findings, including:**
  - health risks based on toxicology hazard information and human exposure information;
  - safety risks, especially those related to significant incident risks; and
  - environmental risks that relate to the impact of a release, both intended (permitted discharges) and unintended (spills).

- **Customer communication** that provides SDSs and other product health, safety and environmental hazard or risk management information. Also, where appropriate, product stewardship information to those who transport and handle your products throughout their life-cycle.

- **Product HSE management system**, including processes that:
  - identify HSE hazards and manage risks;
  - specify and communicate precautions for using, storing, handling, transporting and disposing of products;
› provide guidance on the safe use of your products, as well as beneficial reuse and recycling;
› improve the knowledge of product risks;
› comply with regulations in, and transportation between, relevant markets, or adopt reasonable standards of care where regulations do not exist or are inadequate to promote safe product use; and
› track and evaluate any product stewardship incidents.

**BASIS**

The indicator is qualitative and reportable at a global level and you may support it with quantitative data on the extent of your programmes.

Products here generally include hydrocarbons and their derivatives but can also be interpreted more broadly to include other types of products, as appropriate to your company’s business activities.

The indicator has linkages to indicator ENV-7 in Module 4 Environment but excludes operational environmental impacts covered within the module.

We have not described any normalization methods for these indicators due to the extensive range of product types and diversity of regulatory regimes.

**REPORTING ELEMENTS**

**CORE**

**C1**
For petroleum consumer products, such as fuels, petrochemicals and hydrocarbon-derived polymers and lubricants, discuss your approach to product assessments, for new and existing products and how you address any findings.

**C2**
Describe how you communicate product HSE hazards and risk controls to your customers and the general public, including information on transportation and handling of products.

**C3**
Describe your approach to health, safety and environmental management of products.

**ADDITIONAL**

**A1**
Report on your activities to monitor, track, evaluate and manage product-related incidents.

**A2**
Describe your efforts to encourage sustainable materials consumption, including approaches to reduce, reuse and recycle your products, such as lubricants and plastics.

**A3**
Report on your activities to engage suppliers, contractors, and downstream users on product stewardship.

**A4**
Provide quantitative data to demonstrate the scale of your product stewardship activities, such as the number of product assessments you conduct, for new and existing products, or the percentage of your SDSs that meet requirements within their applicable review periods.
SHS-6
Process safety

WHY THIS MATTERS

Major incidents may be caused by an uncontrolled release of gas or fluids from upstream or downstream oil and gas processing facilities, midstream assets and exploration production wells. Due to the potential consequences to people, property and the environment, it is important to have established robust process safety management systems and to convey your commitment and approach to preventing major incidents. This includes transparent disclosure of process safety events based on industry-standard key performance indicators. Reporting may also include information on leading indicators to be more predictive of significant incident risks and to assess the strength of preventive barriers. In addition, the industry has established lagging and leading indicators to record and manage well control incidents.

SCOPE

The detailed definition of this indicator is based on the consequence criteria defined by API Recommended Practice 754 – Process Safety Performance Indicators for the Refining and Petrochemical Industries [15] and IOGP’s updated Report 456 entitled Process safety – Recommended practice on Key Performance Indicators [16], which covers drilling and production processes.

These documents describe four tiers that provide a range of lagging and leading metrics as shown in Figure 5.1. Both industry and international regulators have adopted Tier 1 and Tier 2, and API and IOGP publish industry benchmarking data submitted by oil and gas companies. The other reporting elements are based on Tiers 3 and 4, which are site-specific.

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Figure 5.1: The four tiers of lagging and leading indicators
API RP 754 focuses on refining and petrochemical operations but has wider applicability. IOGP has developed definitions for upstream production and drilling activities, which are published within its annual *Health and Safety data reporting system users’ guide*.

**Summary of Tier 1 and 2 process safety event definitions**

A Tier 1 process safety event is defined by API RP 754 as an unplanned or uncontrolled loss of primary containment (LOPC) release of any material, including non-toxic and non-flammable materials, such as steam, hot condensate, nitrogen or compressed air, from a process that results in one or more of the following consequences:

1. An employee, contractor or subcontractor ‘days away from work’ injury or fatality.
2. A hospital admission and / or fatality of a third party.
3. An officially-declared or precautionary community evacuation or community shelter-in-place.
4. Fire or explosion damage greater than or equal to US$100,000 of direct cost.
5. An engineered pressure relief discharge – whether directly to the atmosphere, or via a downstream destructive device – or an upset emission from a permitted or regulated source, that is in excess of the Tier 1 threshold quantities detailed in API RP 754, in any one-hour period, that results in one or more of the following consequences:
   - rainout;
   - discharge to a potentially unsafe location;
   - an onsite shelter-in-place or on-site evacuation, excluding precautionary on-site shelter-in-place or on-site evacuation; or
   - public protective measures, such as road closures, including precautionary public protective measures.

A Tier 2 process safety event is defined similarly but with less severity than the Tier 1 criteria above. The lower thresholds include a recordable injury for consequence 1 and financial fire damage of US$2,500 for consequence 3, as well as lower discharge thresholds for consequence 5. See API RP 754 and IOGP’s Report 456 for detailed definitions and guidance.

It should be noted that any process safety event causing, or having the potential to cause, a fatality of a worker or member of the public, is regarded a high potential (HiPo) event. Investigation and review of HiPo events can provide important lessons for industry, as described in indicator SHS-3.

We recommend that companies report both Tier 1 and 2 process safety events, as well as providing context to broadly describe the nature of the event, the consequences and subsequent interpretation of the data. This includes describing any significant process safety events, where you determine significance based on the guidance in the definitions below and as provided in the *Glossary*.

In addition to Tier 1 and 2 reporting, we encourage you to develop, select, use and evaluate site-specific process safety and asset integrity leading metrics. A leading metric reporting programme supports the continuous improvement of your safety performance. These Tier 3 and 4 metrics support your actions to improve safety barriers and management system elements as identified through past incidents, your experience with risk controls and knowledge of your specific facilities.
Tier 3 and 4 metrics are applied at site level to judge the performance of local management system processes and programmes over time. These metrics are generally more difficult to normalize, compare or benchmark across or between companies.

You can also record well control incidents and follow a similar four-level system of severity, depending on the extent of well control failures with the potential to cause releases or damage.

**BASIS**

The indicator is primarily quantitative. The total number of process safety events should be reported at a global level and can be supported by qualitative descriptions of significant incidents, responses and plans. You should consolidate quantitative data within your reporting boundary using the ‘operational approach’ (see Module 1 Reporting process for guidance on reporting boundaries).

To provide comparison between major activities or companies of different scale, you can express the number of process safety events as a normalized rate. As there is no uniformly applicable normalization factor for process safety indicators based on facility configuration, API and IOGP use worker exposure hours (as used in indicator SHS-3 for calculation of occupational injury and illness incidents). Thus, a process safety event rate (PSER) can be defined as the total number of Tier 1 events per million hours worked, and similarly for Tier 2 events. As a convenient, easily obtained factor for Tier 1 and 2 indicators, the PSER provides a simple basis for year-to-year trends for comparison between similar business activities.

The number of Tier 1 and Tier 2 events recorded by a single asset is typically low. For this reason, PSER data is likely to be statistically valid when aggregated and suitable for reporting at the company or industry level. In contrast, Tiers 3 and 4 will often be site-specific and not usually suitable for aggregated data reporting in company reports or for industry benchmarking.
### REPORTING ELEMENTS

#### CORE

| C1 | Number of Tier 1 process safety events reported separately for each major business activity, such as refining or upstream. |
| C2 | Provide qualitative descriptions of any significant process safety events that occurred during the reporting year, including your response and lessons learned to prevent recurrence. |
| C3 | Explain how you review your assessment and management of process safety risks. |

#### ADDITIONAL

| A1 | Number of Tier 2 process safety events, reported separately for each major business activity, such as refining or upstream. |
| A2 | Describe how you assess, monitor and review process safety and well control risk control barriers. |
| A3 | Describe your approach and application of Tier 3 and 4 leading metrics, such as:  
  - demand on safety systems intended to protect against LOPC events, such as pressure relief valve release, safety instrumented system events;  
  - operating envelope deviations;  
  - the effectiveness of your management system;  
  - training; and  
  - management of change and permit to work. |
| A4 | Describe how you incorporate cultural and human factors into process safety, including leadership, risk awareness and employee development. |
| A5 | State any commitments or targets you have that relate to process safety and report your progress. |
| A6 | Report process safety event rates (see normalization notes above). |
| A7 | Report number of Level 1, 2 and 3 well control incidents and separately describe any Level 1 incidents. |

### DEFINITIONS

- **Process safety**: the discipline of preventing an unplanned or uncontrolled release of hazardous material, for example a loss of primary containment (LOPC), due to an unintended event or condition. For example, this could be the release of hydrocarbons that, if ignited, could result in an explosion or fire, leading to a major incident.

- **Significance**: A judgement determined by the company on whether a specific aspect, impact, event, action or other type of outcome of a company’s activities or performance is sufficiently important in terms of management and/or reporting. The judgement may be informed by a number of factors such as the extent of actual or potential consequences, local stakeholder concerns, regulatory or legal exposure, or risk/impact assessment processes.

*Note: in this Guidance, ‘significant’ applies to individual, usually localized outcomes whereas ‘material’ applies to an entire issue which can be informed by multiple outcomes across the entire company and reflects the issue’s relevance to the company’s management and stakeholders overall. A significant localized impact, such as a major safety incident, can result in a material issue for the company as a whole (or affect the materiality of an existing issue).*
SHS-7
Security risk management

WHY THIS MATTERS
As a global industry with vulnerable assets, hostile actions by third parties can present threats to life, the environment, socio-economic stability and operational disruption. This indicator gives you the opportunity to explain how you manage and monitor security challenges to ensure your company’s resilience to security risks and your capacity to cope with security threats.

SCOPE
Security risks and threats at the facility or asset level can include:

- political or social unrest;
- terrorism or armed conflict;
- sabotage, or other criminal activity (e.g. theft);
- insider actions;
- maritime / airline hijacking; or
- cyber-attacks.

Security risks are also important at an individual level, particularly during travel, such as the risk of:

- assaults / muggings, kidnapping;
- theft of proprietary documentation or electronic media;
- identity data loss; or
- fraudulent behaviour.

IOGP Report 555, Conducting security risk assessments (SRA) in dynamic threat environments [17] provides an extensive set of examples of security threats.

Consequences of security incidents can include:

- fatalities, injuries or illness, reportable under indicator SHS-3, and reportable to IOGP under incident category 'Assault and violent act';
- process safety events due to sabotage or wilful damage, such as loss of hydrocarbon containment, fires or explosions, reportable under SHS-6, and reportable to IOGP as incident category 'Process safety events due to sabotage or wilful damage'; and
- environmental impacts – this may include spills reportable under indicator ENV-6.

Human rights can be put at risk by security services that maintain the safety of operations. Reporting on this risk is the subject of indicator SOC-3 in Module 6 Social.

IOGP and API have issued several publications on security management for the oil and gas industry that provide additional guidance (see References, links and other sources).
Module 5
Safety, health and security

BASIS
This indicator is qualitative and reportable at a global level and may be supported by local case studies and examples or by quantitative data, such as training records.

REPORTING ELEMENTS

CORE

C1 Describe your approach to security management for existing operations, projects planned or underway and new locations for business activities, including assessment of threats, vulnerabilities and risks.

C2 Outline awareness and training processes that address security risks and threat response procedures for your workforce and how you make members of the community aware of relevant security risks.

C3 Outline your management approach to promoting resilience to cybersecurity threats or attacks.

ADDITIONAL

A1 Provide qualitative descriptions of any significant security events that caused harm to people, the environment or business operations, including your response and plans to prevent recurrence.

A2 Outline your standard security measures for monitoring potential threats and security risks.

A3 Outline your management procedures and plans in the event of a security crisis, including measures to maintain business continuity.
References, links and other sources

References with links


7. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA): Injury and Illness Recordkeeping and Reporting Requirements [https://www.osha.gov/recordkeeping/](https://www.osha.gov/recordkeeping/)


Module 5
Safety, health and security


Other sources and links


Safety, health and security engagement


Workforce and community health


- CDC (Centers for Disease Control and Prevention): Guidance documents on diseases (including SARS, HIV/AIDS, etc.) as well as workplace health and safety, emergency preparedness and environmental health. www.cdc.gov


Product stewardship


Process safety

Module 5
Safety, health and security


**Security risk management**

  - API RP 70 Security for Offshore Oil and Natural Gas Operations
  - API RP 701 Security for Worldwide Offshore Oil and Natural Gas Operations
  - API Standard 780 Security Risk Assessment Methodology for the Petroleum and Petrochemical Industries
  - API RP 781 Facility Security Plan Methodology for the Oil and Natural Gas Industries
  - API RP 1164 Pipeline Cybersecurity


**Transport Safety**