

The International Regulators' Forum safety performance indicators project – review of available data and previous results

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1. The IRF performance indicators project

The International Regulators' Forum (IRF) was created in 1994 to provide international leadership on safety-related regulatory matters for offshore oil and gas activities. The IRF recognizes the importance of measuring the safety performance of offshore activities as a way of promoting the best sustainable safety performance, supporting best practices, and sharing experiences. In 2004, the IRF defined a framework as shown in Table 1 considering common lagging performance indicators, supporting data acquisition among members and providing a regular review of offshore safety performance¹ in annual intervals. The goal is to measure and compare offshore safety performance among IRF country members and consider it into IRF discussions.

Table 1 - IRF indicators

| |
|---|
| Fatalities or injuries |
| <ul style="list-style-type: none">• Fatalities• Major injuries• Injuries > 3 days LTI & RWI• Injuries 1 > and <= 3 days |
| Gas releases |
| <ul style="list-style-type: none">• Major Gas Release number per 100 million boe produced gas• Major Gas Release mass per 100 million boe produced gas• Significant Gas Release number per 100 million boe produced gas• Significant Gas Release mass per 100 million boe produced gas |
| Collisions |
| <ul style="list-style-type: none">• Major Collisions/100 Offshore Installations• Less than major Collisions/per 100 million BOE |
| Fires |
| <ul style="list-style-type: none">• Major fires/100 Offshore Installations• Less than major Fires/100 Offshore Installations |
| Well Control |
| <ul style="list-style-type: none">• Major Loss of Well Control /100 Well-related activities• Less than major Loss of Well Control/100 Well-related activities |

2. IRF project performance indicators

Since 2007, the IRF has been publishing on its website the data and indicators reported by the each forum member². The IRF indicators represent the forum as “a big country”, summing up all members data to provide a metric of the offshore oil and gas industry as a whole. The IFR indicators are presented in Figure 1 to Figure 14.

¹ The Project scope and data definitions can be found on:
<http://irfoffshoresafety.com/country/performance/scope.aspx>

² Normalizers are used to convert the data into frequencies of a common base for comparison. These include: hours worked, gas production, number of installations, number of well-related activities.

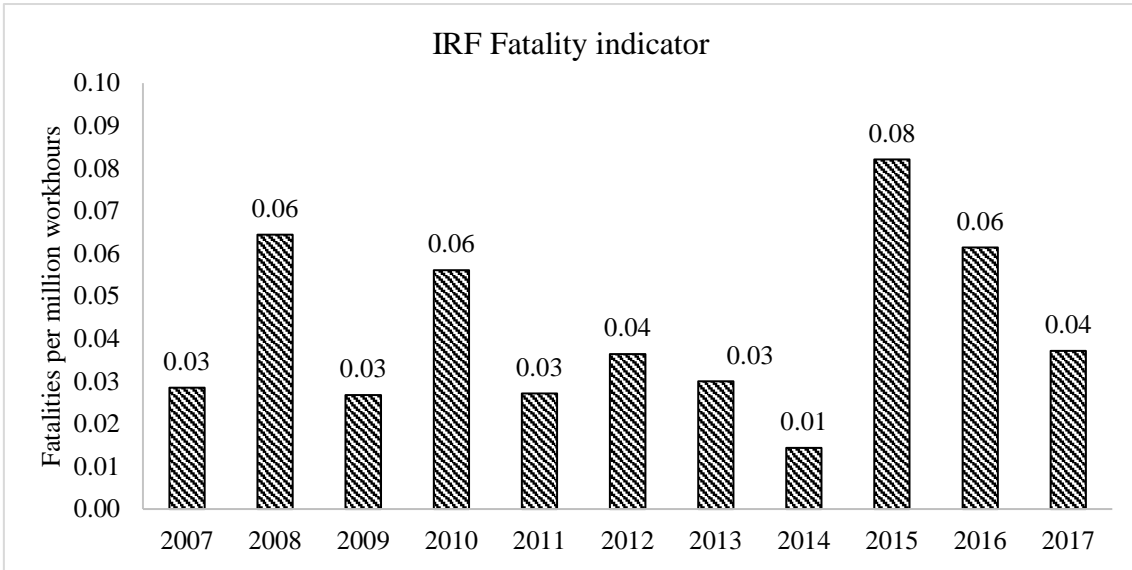


Figure 1 - IRF Fatality total and average indicators

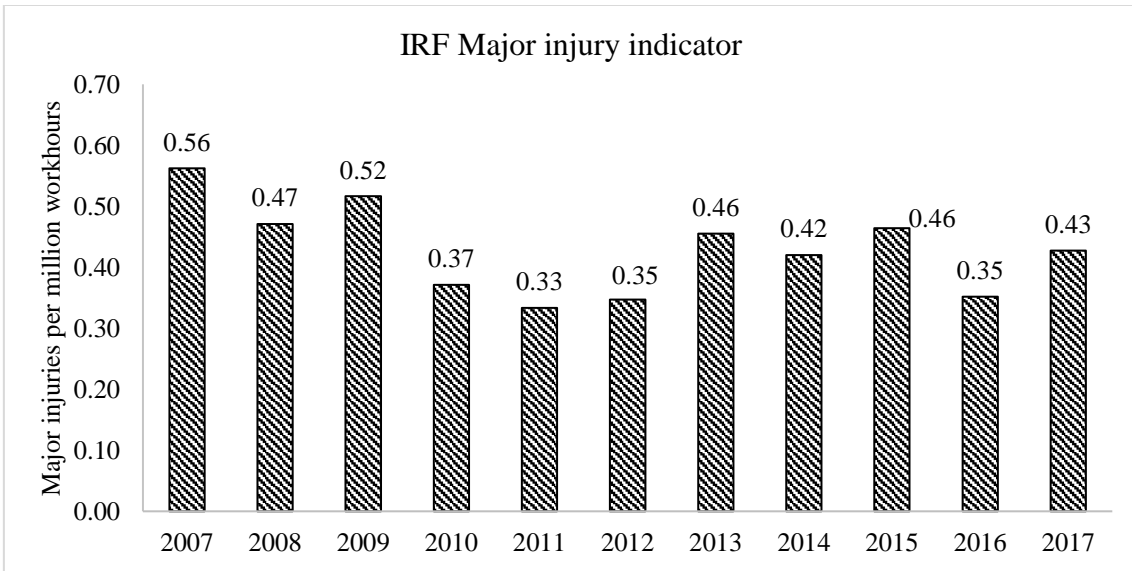


Figure 2 - IRF Major injury indicator

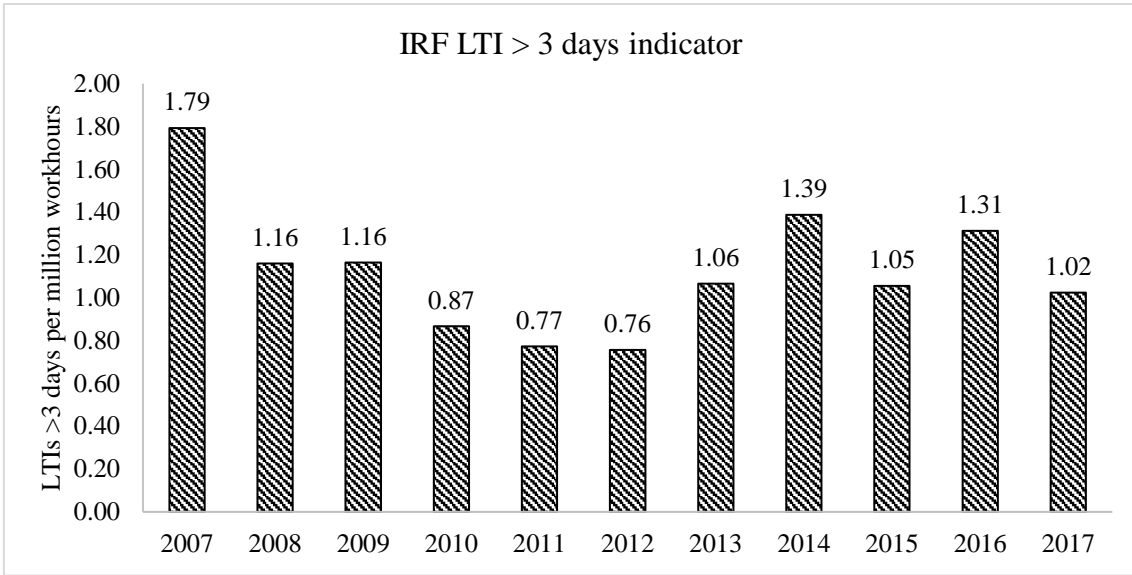


Figure 3 - IRF LTI>3 indicator

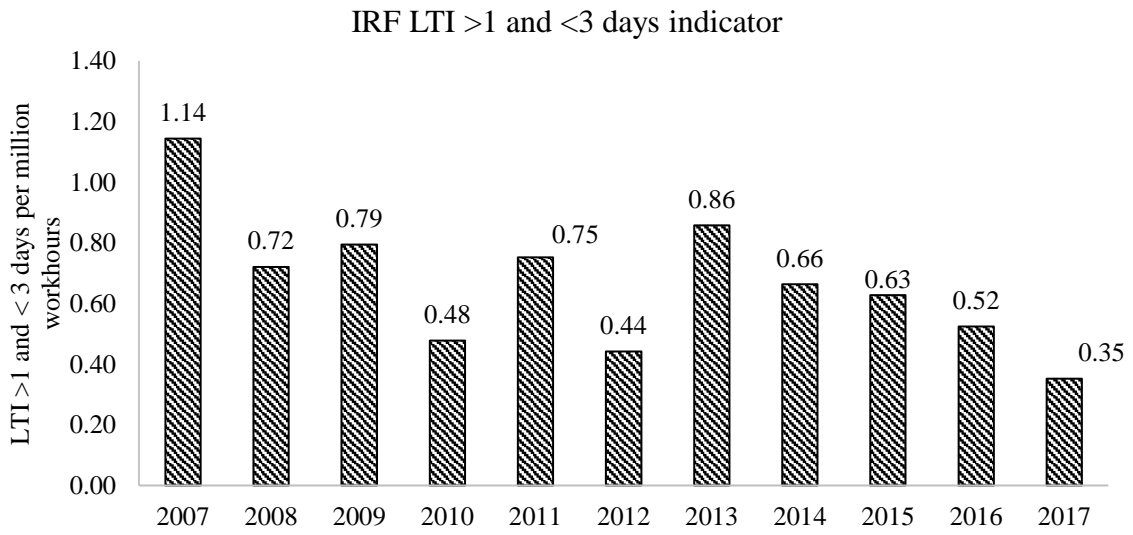


Figure 4 - IRF LTI>1 and <3 indicator

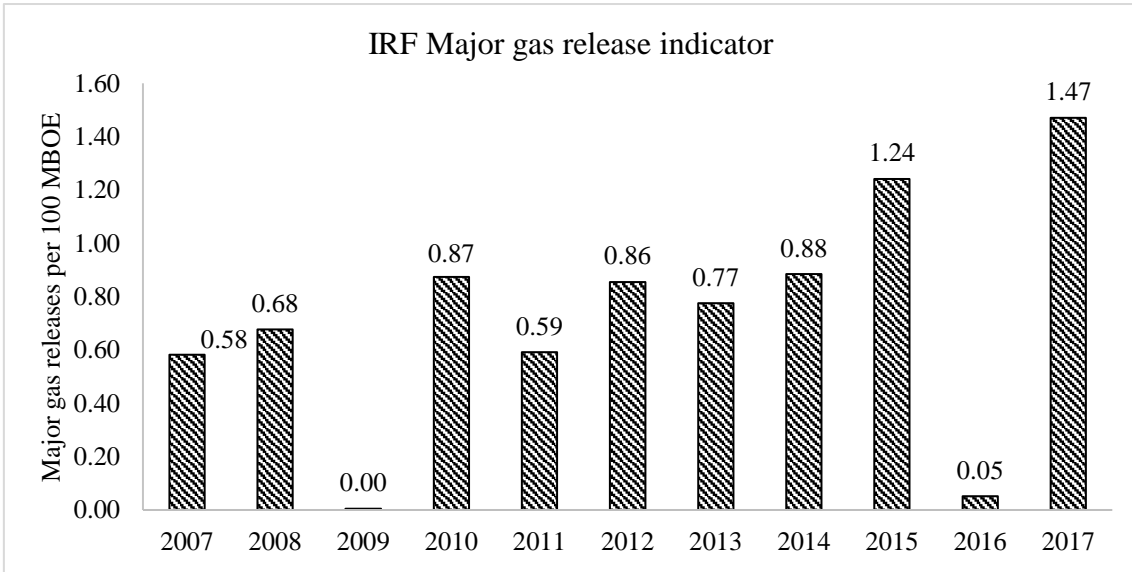


Figure 5 - IRF Major gas release indicator

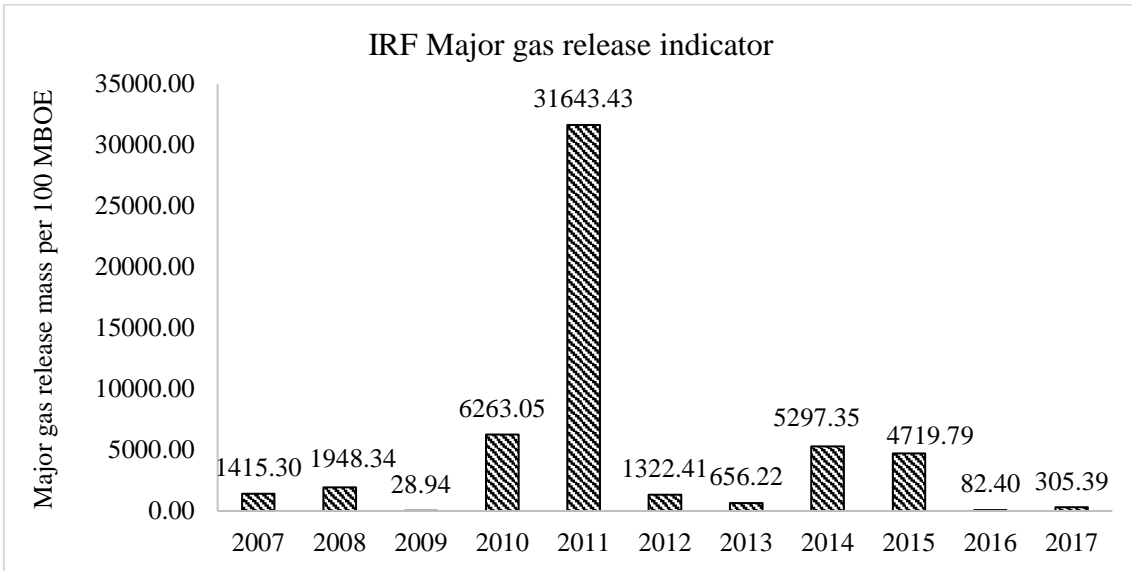


Figure 6 - IRF Major gas release mass indicator

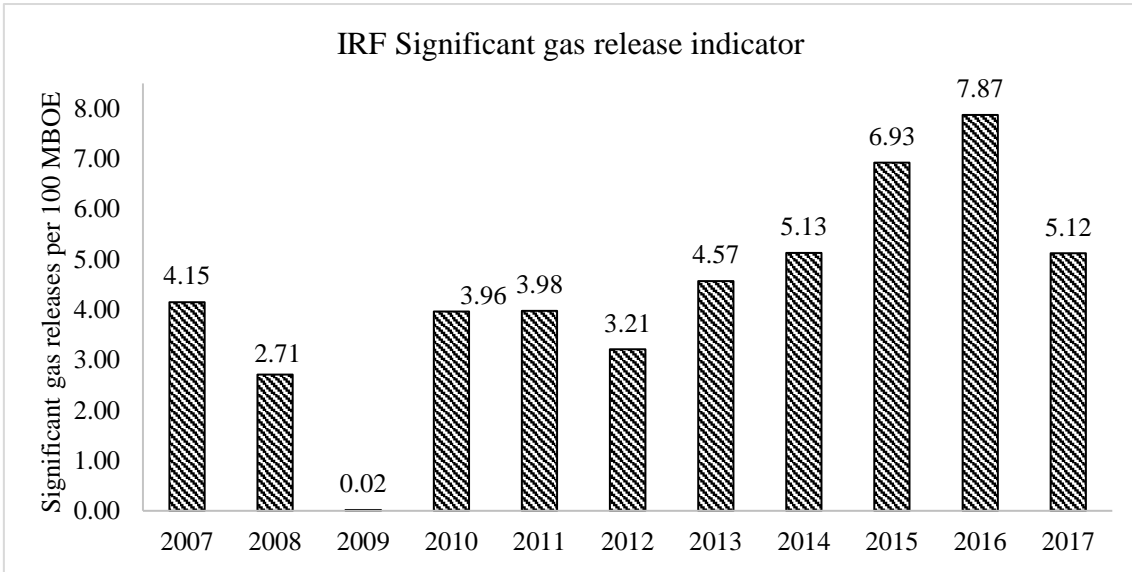


Figure 7 - IRF Significant gas release indicator

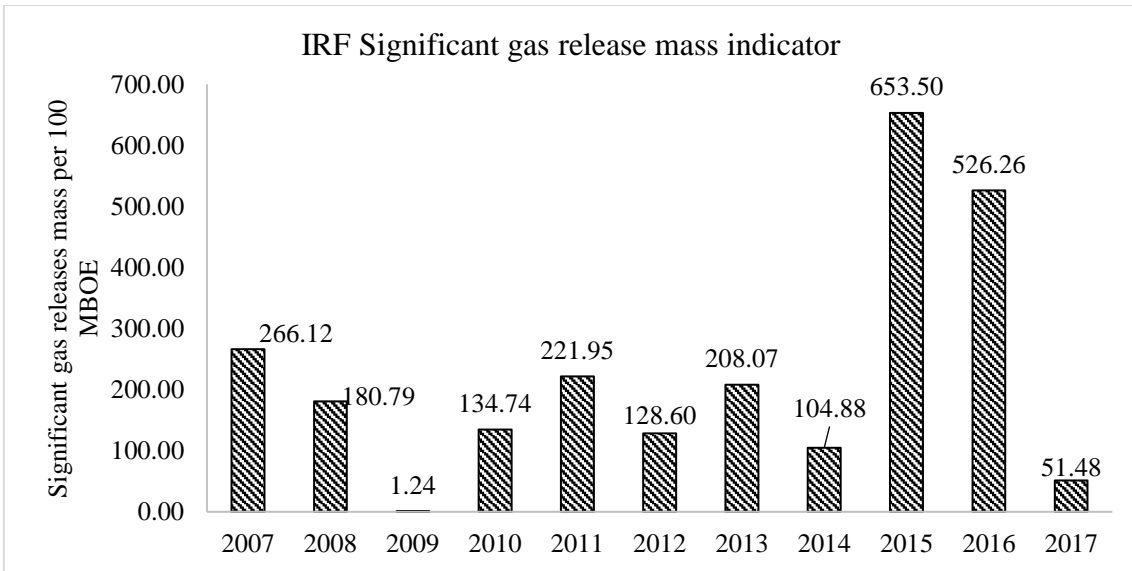


Figure 8 - IRF Significant gas release mass indicator

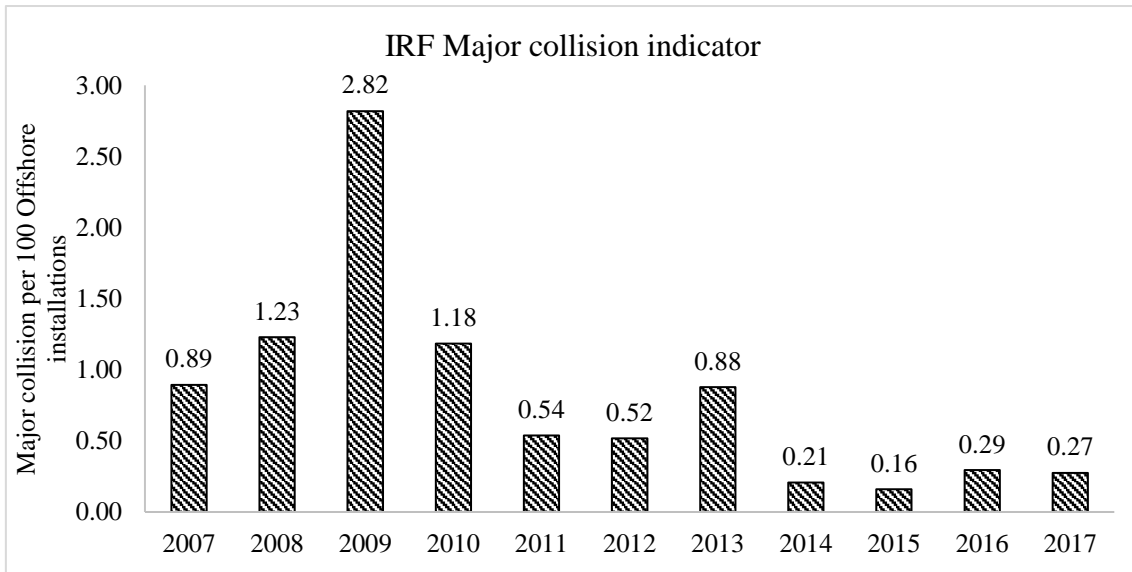


Figure 9 - IRF Major collision total and average indicators

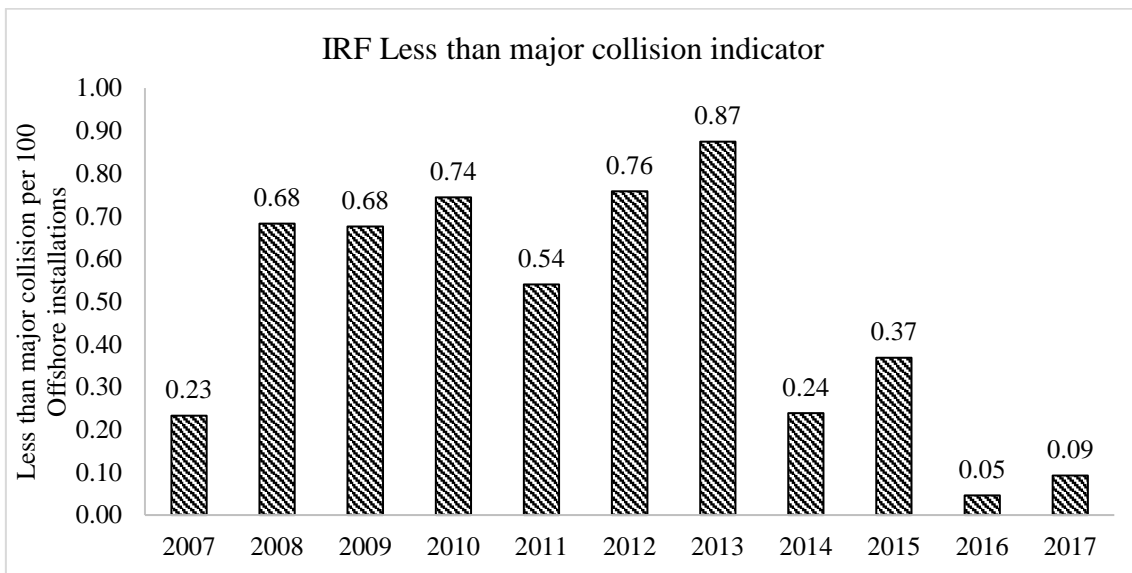


Figure 10 - IRF Less than Major collision indicator

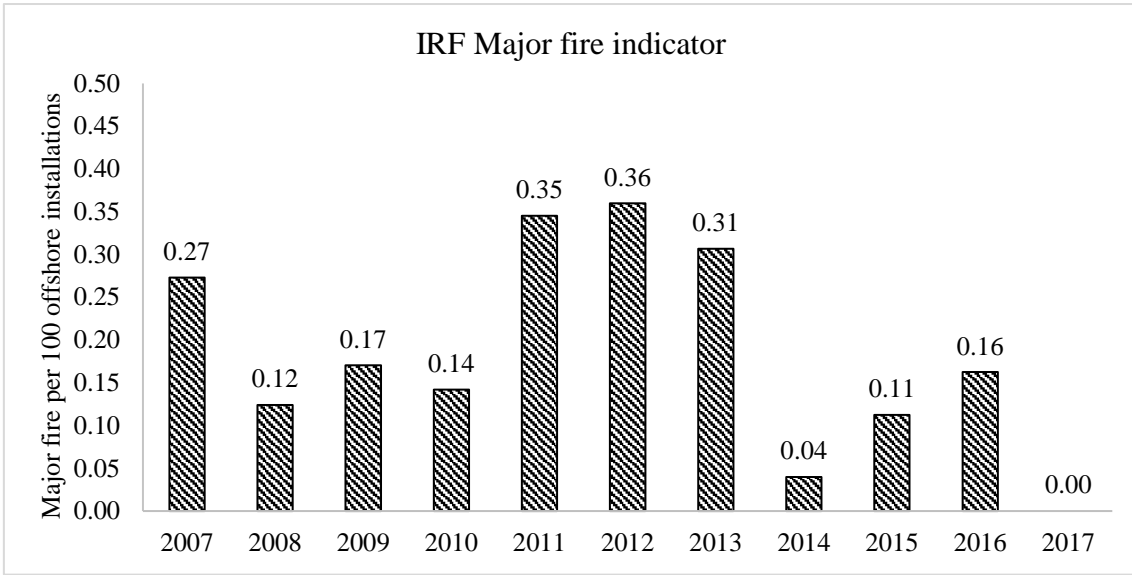


Figure 11 - IRF Major fire indicator

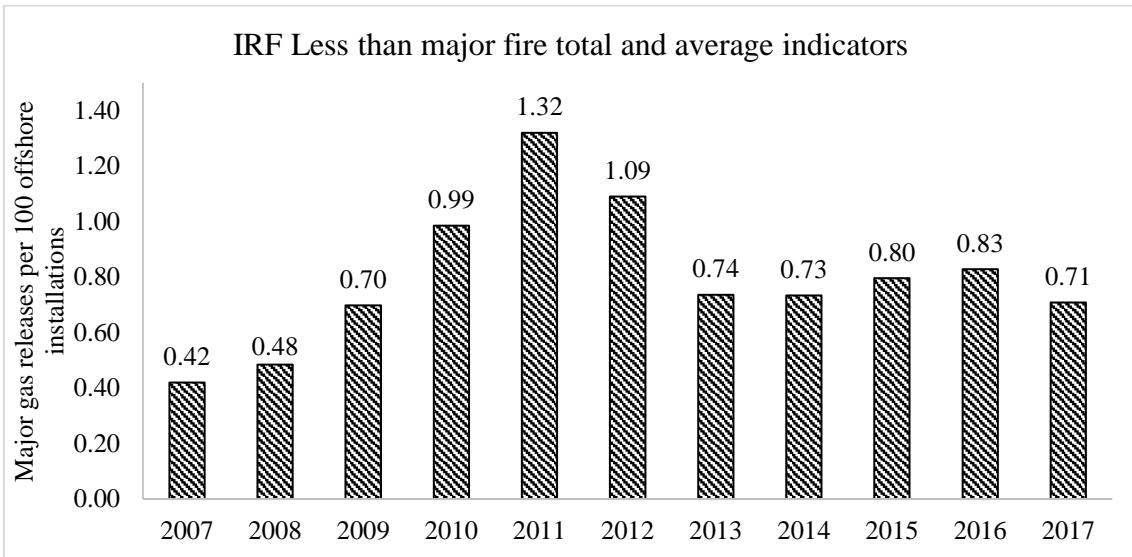


Figure 12 - IRF Less than major fire and average indicators

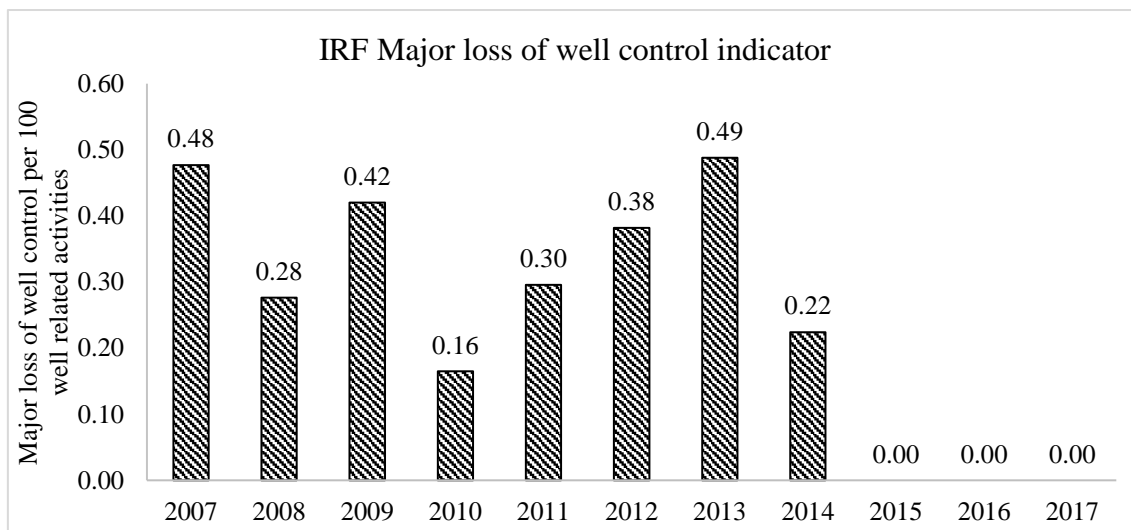


Figure 13 - IRF Major loss of well control indicator

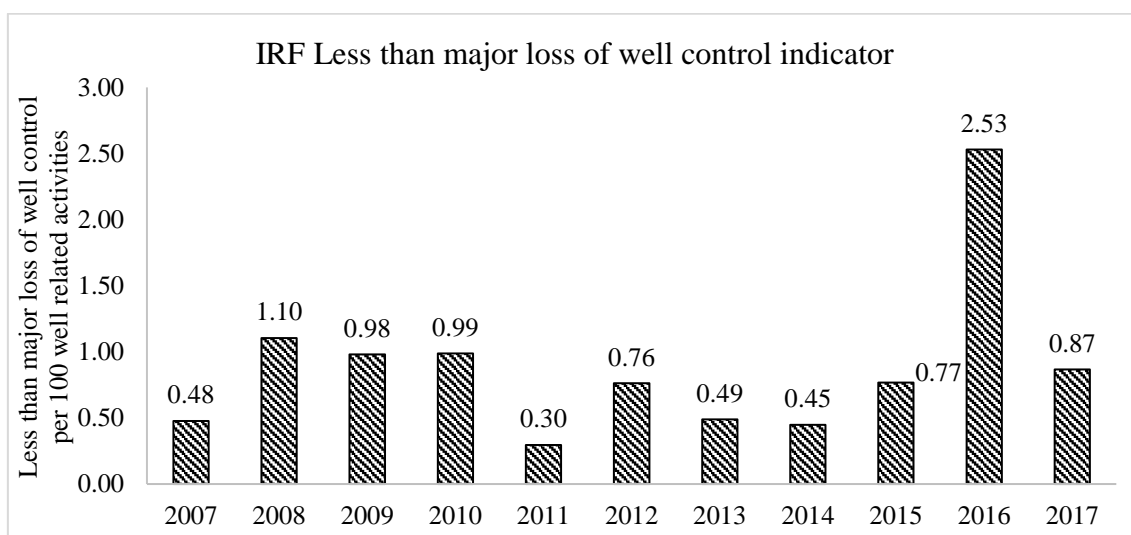


Figure 14 - IRF Less than major loss of well control indicator

3. IRF outputs about offshore safety performance review

Considering the data collected from member countries and the assessment that has been made at the IRF annual meetings, some key findings have been pointed such as:

- In 2013, the IRF's performance measures working group highlighted the variation included in the acquired data and the difficulty in obtaining information from all countries. The assessment of the available data revealed that determining trends for individual countries is difficult, but possible when IRF combined data is used, showing the potential value of the IRF countries performance assessment as a whole. As a result, the data assessment has shown certain stability on the gas releases (IRF, 2013).
- In 2014, the IRF discussions focused on improvement measures; trying to increase the timeliness of sharing and consistency of definitions (IRF, 2014).
- In 2015, IRF members suggested that more root cause analysis would be useful for overall safety improvement (IRF, 2015)
- In 2016, recognizing the benefit of using definitions understood by industry to capture data from major incidents uniformly, the IRF proposed a pilot program involving gathering and

analyzing barrier and causal factor information, using standard barrier definitions as a potential longer-term strategy for data collection, analysis and use (IRF, 2016).

- In 2017, the IRF assessment identified a trend of increasing well control and gas release rates (IRF, 2017)
- In 2018, the IRF assessment concluded that there was no improvement among overall performance related to fatalities, loss of containment and hydrocarbon gas releases (IRF, 2018).

The IRF has also indicated through the 2018's meeting communiqué that a substantial increase in sharing data across industry seems to be the next step change in safety performance, as well as a further improvement in the quality of incident investigations. It was suggested that the barrier failures and causal factors analysis results from the IRF's Performance Measure Working Group should be shared with IOGP to promote improvement and standardization of the information collected for offshore safety (IRF, 2018).

4. Final remarks

It is important to understand data characteristics and limitations prior to drawing conclusions with respect to indicator trends. As lagging indicators are just part of the whole picture, their analysis alone may lead to misinterpretation about the actual safety level. Besides, without leading information and a proper context, the lagging information may support improper future predictions about safety performance. However, the IRF performance project considers a clear data acquisition framework that makes the data from different countries available in a same pattern, providing important information for safety performance assessments. The assessment of key industry outcomes at regular intervals also provides insights to regulatory discussion among the IRF members and the results may also be reflected in local regulatory initiatives.

As a consequence, the IRF's leadership in collecting and reviewing annual safety data may support other activities related to risk control such as local regulatory initiatives and accident frequency information, increasing safety awareness. The IRF performance project provides input to independent analysis and studies, such as academic research, performance comparisons and assessments in different levels of the offshore oil and gas industry. Unfortunately, such initiatives are still not common among the industry members, such as associations, companies and consulting companies that seldom share safety data. Thus, collecting and sharing safety data from different jurisdictions using the same framework supports safety studies, promoting new safety initiatives.

Certainly, it is challenging to acquire and share safety data. There are always difficulties related to data completeness, accuracy, and standardization which may jeopardize all potential positive results of data sharing initiatives. In the end, the IRF's strategy in making safety data available underscores that safety improvement demands cooperation, transparency and the ability to share experiences and to learn from mistakes.

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