

# Safety Statistics for IMCA Members

## Report for the Period 1 January-31 December 2003

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### 1 Introduction

Members will recall that IMCA has produced an annual report of safety statistics (covering fatalities and injuries) supplied by members for the past seven years. This information note reports the annual statistics for 2003. Due to an error in the interpretation of one company's statistics and an adjustment by that company of the figures provided, it has been necessary to reissue this information note, replacing the earlier (July 2004) version.

### 2 Background

Although only a lagging indicator of health, safety and environmental performance, safety statistics are nevertheless seen as providing a useful insight into the performance of a company in this area. The purpose of the statistics is to record the safety performance of IMCA contractor members each year and to enable IMCA members to benchmark their performance.

The Safety, Environment & Legislation (SEL) Core Committee developed leading indicators (of health, safety and environmental performance), which can be promoted to clients and adopted by members, in order to get away from the high reliance on lost time injuries (LTIs) as the arbiter of safety. This work is now complete, with much valuable feedback/input having been gained at the dedicated workshops in 2001, 2002 and at Newcastle in 2003, and the suite of leading performance indicators was set out in information note IMCA SEL 05/03. A pleasing number of members have provided data for the 2003 statistics and a summary of this is included in the final part of this document.

The SEL committee is keen to improve consistency in the data collected and for the 2003 exercise for (lagging) safety statistics (as for the statistics for 2000, 2001 and 2002) figures have been produced that separate onshore and offshore activities. The offshore statistics cover offshore work only, whereas the inclusion of onshore work covers such areas as fabrication yards and office work.

### 3 Summary of Safety Statistics – 1 January-31 December 2003

Overall lost time injury frequency rate (overall LTIFR)	<b>0.99</b>
Overall number of lost time injuries	<b>198</b>
Offshore lost time injury frequency rate (offshore LTIFR)	<b>2.00</b>
Onshore lost time injury frequency rate (onshore LTIFR)	<b>0.49</b>
Rate of overall LTIFR (second highest-second lowest)	<b>15.34- 0.48</b>

The statistics over the past seven years have been as follows:

	1997	1998	1999	2000	2001	2002	2003
Overall LTIFR	4.96	4.86	3.72	3.46	2.97	1.24	0.99
Million hours worked per year	47.6	52.9	52.8	65.6	54.5	197.31	200.40
Million hours offshore						62.14	66.39
Million hours worked onshore						135.16	134.01
Total number of LTIs	236	257	196	227	162	244	198
Number of fatalities overall	3	2	4	5	4	3	5
Fatal accident rate overall	6.3	3.8	7.6	7.6	7.3	1.52	2.49
Offshore fatal accident rate				10.12	10.14	4.83	6.03
Onshore fatal accident rate						0	0.75
Offshore LTIFR				4.25	3.77	2.96	2.00
Onshore LTIFR				1.05	0.86	0.44	0.49
No. of participating companies	23	32	28	31	32	32	31

#### 4 Individual Company Overall Lost Time Injury Frequency Rate

The following table shows the **overall** LTIFR for each of the 31 companies with an identifying number and a letter indicating which band they are in.

In order for members to identify how their company compares to others of like size, four bands are used for contributing contracting companies, categorised by their annual amount of overall working hours. The overall LTIFR for each band is also shown.

A letter accompanies this report to each contributing member which lets each recipient know only its own identifying number.

Overall LTIFR	Company	Banding	Overall LTIFR	Company	Banding
0.00	1	A	<i>contd...</i>		
0.48	2	D	1.26	17	D
1.53	3	D	0.00	18	A
1.41	4	D	20.22	19	A
0.00	5	B	1.74	20	D
0.00	6	B	0.00	21	A
5.04	7	A	2.20	22	D
0.77	8	C	1.85	23	D
3.02	9	B	0.00	24	A
2.11	10	D	0.00	25	B
1.01	11	D	0.00	26	D
1.11	12	D	1.87	27	D
6.92	13	A	12.08	28	A
1.05	14	D	0.00	29	A
2.22	15	C	15.34	30	A
2.22	16	A	2.18	31	D

#### Hours Worked Banding

Band	Hours Worked	Companies in 2003 report	Overall LTIFR for 2002	for 2003
A	<500,000 hours	11	5.14	<b>3.99</b>
B	500,000-1,000,000 hours	4	5.15	<b>0.96</b>
C	1,000,000-2,000,000 hours	2	1.75	<b>1.51</b>

All show an improvement in overall LTIFR. The most striking improvement over last year's figures for each band is that of band B which shows improvement from 5.15 to 0.96. Unfortunately only four companies fall in this banding.

## 5 Comments

- ◆ Fatalities increased, with five reported in 2003 (one onshore), as opposed to three in 2002. Despite the various initiatives to improve safety, the offshore FAR thus increased to 6.03 from 4.83. This can be set against an increase in the offshore working hours of about four million hours or 7%. In 2002, the offshore working hours were 62,142,552 and in 2003 66,386,530;
- ◆ The downward trend of the overall LTIFR has continued from 1.24 to 0.99, with a small increase (%) in overall hours worked. The offshore rate continued to show an improvement over the last four years, from 4.25 in 2000 to 3.77 in 2001, to 2.96 in 2002 and reducing to 2.00 last year, with the amount of improvement increasing each year, demonstrating that there is benefit being derived from safety initiatives;
- ◆ To continue to achieve a view of the trend in figures reported each year, comparisons can be made between each year's relevant offshore and onshore results;
- ◆ Thirty one IMCA contractor members participated in the 2003 exercise (32 last year), which covered about 200.4 million hours worked overall. This represents an increase of 3,088,307 in hours worked over the previous year (about 1.5%);
- ◆ All participating members providing figures to the exercise reported their offshore data, where over 66.4 million hours were worked, compared with about 62.14 million hours last year; whereas only 23 companies provided onshore data. The onshore-only LTIFR was based on 134 million hours worked (135.2 million last year). Despite a small decrease in onshore working hours, the LTIFR has increased slightly, from 0.44 to 0.49;
- ◆ The increase in onshore hours over the past two years in relation to previous reports is a result of some members now including their onshore fabrication plants, which has led to the change from office-based onshore work to the different risks associated with heavy industrial operations;
- ◆ Overall, there were 198 lost time injuries reported that resulted in at least one day off work, 46 less than last year. There were 133 lost time injuries offshore, 51 less than last year, whereas onshore LTIs increased from 60 to 65 ;
- ◆ The table of overall LTIFRs above shows how the companies compared across all sizes of company, with provision made for those companies with similar amounts of working hours to evaluate their relative performance.

## 6 Comparison with Published Figures

The reports from IADC (the International Association of Drilling Contractors), OGP (the International Association of Oil & Gas Producers) and IAGC (the International Association of Geophysical Contractors), are summarised in paragraphs 6.1-6.3 below.

### 6.1 International Association of Drilling Contractors (IADC)

The IADC database for 2003 is taken from an industry total, including drilling on land and at sea world-wide, of 301.96 million working hours – an increase of 7.3% on last year. IADC reports an industry total lost time injury frequency rate (LTIFR) of 3.16 – a 3.4% improvement on its rate for last year of 3.27, despite an increase in working hours of 7.3%. Extracting from IADC's figures, we calculate that their offshore LTIFR showed an improvement (on last year's figure of 2.35) at 1.97, with offshore working hours at 139.5 million.

IADC's onshore hours are much higher, at 162.4 million, with an LTIFR of 4.19.

Total fatalities were 31 (15 last year) giving a fatal accident rate of 10.27 (5.3 last year). 13 of these fatalities were offshore, with the highest being five in African and four in US offshore operations.

### 6.2 International Association of Oil & Gas Producers (OGP)

OGP has reported an increase in its overall lost time injury frequency rate (LTIFR) from 1.09 in 2002 to 1.16 in 2003 (6.4% worse).

The OGP database was founded on 2,247 million hours worked (last year's figure of 2,121 million was said at the time to be the highest in the history of safety data reporting), an increase of nearly 6% on 2002 and based on 36 reporting companies from operations in 74 countries.

The LTIFR for offshore was 1.27 (18% better than their last year figures) and 1.13 for onshore (19% worse). This should be compared with the IMCA offshore LTIFR this year of 2.00 and 0.49 onshore.

OGP reports 15 company and 96 contractor fatalities for 2003 – nine more in total than in 2002. There were also 17 third party deaths. This was against a 6% increase in the number of work hours reported. The offshore FAR was 4.16, its lowest recorded to date; and onshore 5.18.

The most common fatalities related to 'vehicle incidents' and 'struck by' incidents. One road accident in Libya accounted for the death of 5 contractor personnel. 42 of their company/contractor fatalities occurred in African operations.

OGP also provides figures for its contractors. The LTIFR is shown as 1.32 – 13% worse than last year. The difference between onshore and offshore contractors is not readily identifiable.

The OGP contractors fatality rate was 5.56% – 13% worse than last year.

### 6.3 International Association of Geophysical Contractors (IAGC)

The figures for the IAGC are not yet available for 2003, but we note that for 2002 its LTIFR was 1.0, based on a working time of 27 million hours and 27 LTIs. This was an improvement on 2001, which had showed an LTIFR of 1.19 based on the same amount of 27 million hours. There were no fatalities in 2002 as against one in 2001. Six companies contributed information.

## 7 Definitions

In order to compile meaningful statistics, it is important that standard, consistent, well defined terms are used. For the purposes of compiling the IMCA (lagging) statistics the following revised definitions are used:

**No. of Fatalities** – the total number of employees and others who died as a result of an accident

**Fatal Accident Frequency** – number of fatalities per 100,000,000 hours worked

### Hours Worked

- ◆ for **onshore** operations – the actual hours worked, including overtime hours
- ◆ for **offshore** operations – the 'actual hours worked' based on a 12-hour day

**Lost Time Injury (LTI)** – comprises all lost work day cases (including fatalities, but excluding restricted work day cases) where:

- ◆ A lost work day case is any work-related accidental injury other than a fatal injury which results in a person being unfit for work on the next shift/day; and
- ◆ A restricted workday case is any work-related injury other than a fatality or lost work day case which results in a person being unfit for full performance of a regular job on the shift/day after the injury. Work might be:
  - an assignment to a temporary job;
  - working in the regular job but not performing all the usual duties of the job

**NB** Where no meaningful restricted work is being performed, the incident should be recorded as a lost work day case.

**Offshore Lost Time Injury Frequency Rate**  
(Offshore LTIFR)

$$\frac{\text{lost time injuries offshore} \times 1,000,000}{\text{offshore hours worked}}$$

**Onshore Lost Time Injury Frequency Rate**  
(Onshore LTIFR)

$$\frac{\text{lost time injuries onshore} \times 1,000,000}{\text{onshore hours worked}}$$

**OVERALL Lost Time Injury Frequency Rate**  
(Overall LTIFR)

$$\frac{\text{lost time injuries overall} \times 1,000,000}{\text{total hours worked (offshore + onshore)}}$$

## 8 Leading Indicators

### 8.1 Overview

As stated above, IMCA invited members to submit details of their leading safety performance indicators, as set out in information note IMCA SEL 05/03. Reference to that note explains their relevance and, for convenience, the individual definitions are set out later in this document.

This is the first year that IMCA has collected leading performance indicators and thus the first occasion that IMCA can examine leading indicators against lagging indicators. The table below shows the correlation between the two.

Not all members were able to provide leading statistics, but it is made clear where no leading indicators were provided by placing an asterisk next to that company.

Some companies provided information that was insufficient to produce a rating under all columns.

Two extra companies are included which were able to provide leading indicators but were excluded from the original lagging indicator list because they were included within overall company group figures, or were supplier members.

### 8.2 Results

Company No	Total man/hrs.	Overall LTIFR	Safety Observation Frequency Rate (SOFR)	Reporting Activity Level (RAL)	Management Visit Rating (MVR)	Lessons Learned Rating (LLR)
* 1	401,260					
2	112,170,798	0.48	29.62	587.18	0.00	0.00
3	4,583,727	1.53	0.00	243.13	0.06	3.13
4	2,125,681	1.41	832.96	678.75	0.41	2.75
5	551,166	0.00	1.45	0.00	1.81	0.00
6	932,737	0.00	42.46	110.00	15.33	151.00
7	396,600	5.04	0.00	0.00	2.61	5.67
8	1,293,287	0.77	88.77	0.00	3.32	4.00
* 9	992,090	3.02				
* 10	8,075,105	2.11				
11	2,962,045	1.01	53.68	172.50	0.00	0.00
12	7,236,950	1.11	3.01	116.67	0.01	0.00
13	289,026	6.92	6.92	60.00	4.96	2.00
14	9,510,783	1.05	64.73	330.00	1.20	0.00
* 15	1,348,523	2.22				
* 16	450,974	2.22				
17	4,752,367	1.26	100.20	274.29	0.02	0.00
18	324,752	0.00	0.00	20.00	32.95	11.00
19	197,828	20.22	8.09	87.00	2.02	2.80
20	5,178,768	1.74	73.57	64.00	0.06	5.40
21	200,544	0.00	23.93	55.00	9.47	11.00
22	7,714,114	2.20	134.48	226.11	0.01	0.00
23	16,200,000	1.85	102.05	0.00	0.01	0.42
24	38,192	0.00	47.13	5.00	0.00	3.00
* 25	659,024	0.00				
26	3,686,056	0.00	17.15	0.00	0.00	0.00
27	3,736,967	1.87	125.24	0.00	1.05	1.13
28	165,520	12.08	6.04	0.00	1.01	1.33
* 29	480,252	0.00				
30	65,207	15.34	67.48	17.50	0.77	3.00
* 31	3,675,004	2.18				
32	794,109	1.26	299.96	577.50	2.33	1.00
33	1,015,714	4.9	165.99	640.00	0.33	3.67

Note that generally, wherever the LTIFR is high, the relevant leading indicators are low and vice versa. This seems to demonstrate the truism that those companies that spend the most effort in making safety observations, reporting activity levels, making managerial visits and issuing safety bulletins are the companies with the better safety results.

As these records increase we may see more in depth analysis producing further insights into how safety can be improved, such as whether any particular leading indicators show which activity has the most effective result in terms of safe working.

### 8.3 Definitions – see following pages

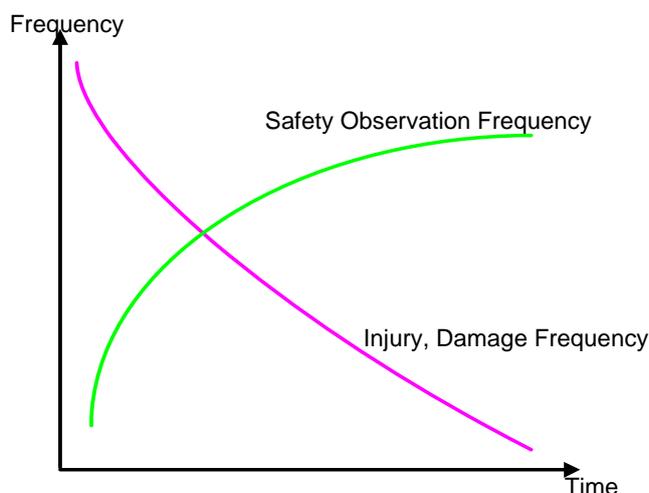


## Safety Observations Frequency Rating (SOFR)

IMCA Leading Safety Performance Indicator No. 1

If we are to eliminate injuries, damage or near miss incidents, we need to focus on at-risk acts and unsafe conditions, which have not yet caused loss or harm but have the potential to. Thus we need a systematic approach to observing, correcting and recording such at-risk behaviour or unsafe situations.

This is generally called safety observation (or hazard observation). The expected result is that by increasing safety observation, there would be a reduction in injuries, damage or near misses – the undesired events.



The measure to be used by IMCA will be based on the number of safety observation records made over the course of 12 months. The measure is directly related to operational work man-hours and as such the measure should be based on frequency.

The definitions for the determination of operational work manhours is defined in information note IMCA SEL 38/02 – November 2002.

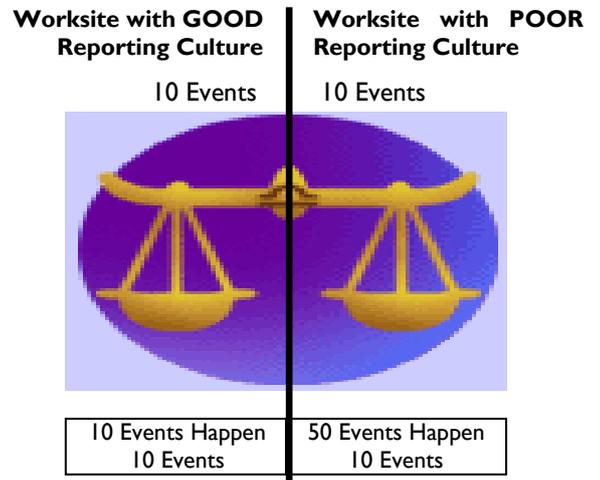
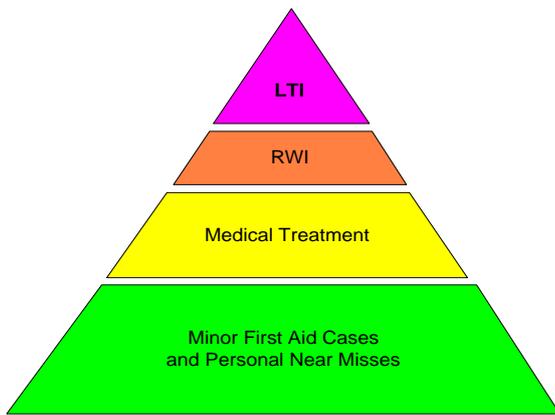
Since “pro-active” worksites are expected to generate a high level of reporting (perhaps several hundred in a year) the frequency basis shall be:

$$\begin{aligned} \text{SOFR} &= \text{Number of Safety Observation per 200,000 man hours} \\ &= \frac{\text{Number of Safety Observations} \times 200,000}{\text{Total Manhours}} \end{aligned}$$

### Definitions

<b>SOFR</b>	Safety Observation Frequency Rating
<b>Safety Observation</b>	Report identifying at-risk behaviour, or an unsafe condition to prevent loss or harm e.g. STOP card.
<b>Observational Work Manhours</b>	for <b>onshore</b> operations – ‘actual’ hours worked, including overtime hours for <b>offshore</b> operations – the hours worked, based on a 12-hour exposure day

In a mature safety culture, where all injuries, damage or near misses (undesired events) get reported, regardless of their severity, it would be expected that there would be a much greater number of non-serious events for every serious event.



Ultimately we do not want any form of undesired event and those companies with low numbers of actual injuries, damage events or near miss incidents should not be penalised because they have a low number of reports per man-hours worked. We need to also consider the case where all events are not reported. The balance in straight numbers of events shown in the diagram below is not a fair comparison.

It may cause a degree of controversy that a leading indicator measure should be based on a series of lagging indicators but in order to demonstrate that a mature culture exists, we need to assure ourselves that every undesired event is being reported. We cannot equate one company which reports everything and has suffered a certain number of injures with another company where few injuries are reported to achieve the same number.

Thus to show an active worksite, the basis of the reporting level could be a ratio of less serious events to serious events. This can be converted to a number, which expresses the activity level from sums of “weighted” products representing injury severity and is defined as shown below:

$$RAL = \frac{(5 \times FNMR) + (20 \times MTR) + (100 \times RWIR)}{(1 + \text{Number of Lost Time Injuries})}$$

## Definitions

<b>RAL</b>	Reporting Activity Level.
<b>FNMR</b>	Number of First Aid injuries and personal Near Miss reports.
<b>MTR</b>	Number of Medical Treatment reports.
<b>RWIR</b>	Number of Restricted Work injury reports.
<b>First Aid Injury</b>	A one time treatment for the purpose of dealing with minor scratches, cuts, burns, splinters etc which do not ordinarily require medical care.
<b>Medical Treatment Injury</b>	Is work related injury, which requires attention from a medical practitioner (not necessarily a doctor) but does not result in either a lost time injury or a restricted work injury.
<b>Restricted Work Injury</b>	Is a work related injury, which causes the injured person to be assigned to another job on a temporary basis or to work at his normal job less than full time or not necessarily undertaking all of the normal duties
<b>Lost Time Injury (LTI)</b>	A work related injury which cases the injured person to be absent from work for at least one normal shift* after the event because he is unfit to perform any duties.

*\* This should take into account travel time in attending the doctor to assess the injury*



# Line Management Visits Rating (MVR)

IMCA Leading Safety Performance Indicator No. 3

Line Managers have overall accountability for the safety of people and the protection of equipment on their worksites. They are responsible for ensuring a safe system of work but are equally responsible for listening to people's concerns with regard to safety and to then act on them. It is also accepted that managerial leadership in demonstrating their interest and involvement in issues is a key factor in improving general behavioural aspects.

Thus a measure of a pro-active safety culture is seen to be adequate qualitative visits by relevant managers to their operational worksites. The measure should not only be related to the operational man-hours expended on the site but should also link to management focus on serious undesired events. After all, sites where serious events happen, should expect a higher number of visits to correct such situations.

Thus the measure proposed is:

$$\begin{aligned} \text{MVR} &= \text{No. of Managerial Visits per 100,000 man-hours per (1 + No. of Lost Time Injuries)} \\ &= \frac{\text{MV} \times 100,000}{(1 + \text{LTI}) \times \text{Manhours}} \end{aligned}$$

## Definitions

**MVR** Managerial Visit Rating.

**MV** Managerial visits may be counted if the Managers meet the criteria provided below. The visits should be made offshore during operational activities and be of at least 24 hours duration. (Management visits during port visits are seen as routine). The visit must include a safety briefing or presentation to the majority of the offshore people. It may also involve the manager making a safety performance check of the site with the people who manage or supervise the activities.

**Lost Time Injury (LTI)** A work related injury which causes the injured person to be absent from work for at least one normal shift\* after the event because he is unfit to perform any duties.

\* This should take into account travel time in attending the doctor to assess the injury

## Criteria

- ◆ The manager has commercial or production responsibility for the company (e.g. Managing Director);
- ◆ The manager has responsibility for health, safety and environmental processes or other key process within the company;
- ◆ The manager is directly responsible for the operational or service support activities of the particular offshore barge or ship (e.g. Operations Manager);
- ◆ The manager is directly responsible for the conduct of the project (e.g. Project Manager).



# Lessons Learnt Rating (LLR)

IMCA Leading Safety Performance Indicator No. 4

As a result of reporting undesired events, accident investigations, findings from managerial visits and inspection/audits, actions will be identified to improve safety performance. Sites where safety is given high priority or focus will be keen to see such events closed within a reasonable timescale and to pass on the lesson to others.

The lessons learnt from a series of similar events or from a more serious injury or near miss is usually notified to other worksites via a safety bulletin or safety flash. A simple measure of activity is therefore the number of bulletins issued. To be included in the IMCA leading safety performance indicator, the bulletin must have been issued to IMCA. IMCA safety flashes covering more than one subject count as a single bulletin. The lessons learnt rating is defined as:

$$\text{LLR} = \frac{\text{Number of bulletins issued}}{1 + \text{Number of LTIs}}$$

## Definitions

**LLR**

Lessons learnt rating.

**Lost Time Injury (LTI)**

A work related injury which causes the injured person to be absent from work for at least one normal shift\* after the event because he is unfit to perform any duties.

\* This should take into account travel time in attending the doctor to assess the injury