

# Safety Statistics for IMCA Members

## Report for the period 1 January – 31 December 2009

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### 1 Introduction

IMCA produces an annual report of safety statistics (covering fatalities and injuries) supplied by members. This information note reports detailed annual statistics for 2009. A short executive summary of the figures for 2009 is available as information note [IMCA SEL 17/10](#).

Safety statistics are a useful insight into the performance of a company and industry sector in the areas of health, safety and environment. The purpose of these statistics is to record the safety performance of IMCA contractor members each year and to enable IMCA members to benchmark their performance. Statistics were provided by 152 companies and organisations, representing a significant fraction of the marine contractor membership. Forty-six companies and organisations took part for the first time. IMCA would like to thank all those who took part in this important annual benchmarking exercise.

#### What’s new – changes to the safety statistics report for 2009

- A shorter ‘high-impact summary’ has been published; this is available as information note [IMCA SEL 17/10](#);
- Brief guidance on reporting of statistics from further down the supply chain;
- Some interesting trends in causes of LTIs;
- The graph of onshore LTIR has been omitted to permit a larger graph of offshore LTIFR;
- The percentage of IMCA contractor members contributing data towards the IMCA leading indicators has been omitted;
- The reference to the ‘old’ leading indicators has been omitted.

## 2 Executive Summary

Overall lost time injury frequency rate (overall LTIFR)	<b>0.67</b>
Overall number of lost time injuries	<b>395</b>
Overall total recordable injury rate (TRIR)	<b>2.54</b>
Overall fatal accident rate (FAR)	<b>1.00</b>
Range of overall LTIFR (second highest-second lowest)	<b>29.3 - 0.04</b>
Range of overall TRIR (second highest-second lowest)	<b>42.4 - 0.22</b>
Offshore lost time injury frequency rate (offshore LTIFR)	<b>0.73</b>
Offshore fatal accident rate (FAR)	<b>1.27</b>
Offshore Total recordable injury rate (TRIR)	<b>2.72</b>
Onshore lost time injury frequency rate (onshore LTIFR)	<b>0.43</b>
Onshore total recordable injury rate (TRIR)	<b>1.88</b>

*Table 1 – Summary of IMCA safety statistics for 2009*

The 2009 dataset is drawn from 152 IMCA contractor members, based upon 602 million man-hours of work overall (474 million man-hours offshore). In terms of man-hours worked, this is less than the 2008 figures, although the number of contributors has increased roughly in line with membership, rising from 129 in 2008 to 152 in 2009.

Onshore data was provided by 112 of 152 companies (74%).

The safety statistics recorded here by IMCA members are consistent with those of the other main industry trade associations, the International Association of Oil & Gas Producers (OGP), International Association of Drilling Contractors (IADC), and International Association of Geophysical Contractors (IAGC). Further details of the results published by these organisations can be found in Section 8.

It should be noted that although IMCA encourages all contractor members to take part in this safety statistics exercise, doing so is not mandatory, and statistics are submitted on a voluntary basis on the understanding of complete anonymity. Members should also note that the data recorded here, though broadly representative of marine contractors, are the combined safety statistics only of the 152 contractor members who actually took part. It should be recalled that these statistics necessarily will not capture all the incidents, including fatalities, which may have taken place within the marine contracting industry during 2009. IMCA continues to share information from incidents and fatalities in our sector, even those not reported in these statistics, through our normal communications such as safety flashes.

Members have asked for clarification regarding the extent members should be responsible for reporting safety incidents that occurred within their sub-contractors or further down the supply chain. There is no 'cut and dried' answer, but if there was direct management control of the operations of a sub-contractor, then the incident reporting should remain the responsibility of the member. If a member's management had no 'prevailing influence' over the operations of sub-contractors, then the responsibility for reporting safety incidents generally remains with the sub-contractor.

For the first time, IMCA is publishing detailed statistical analysis of the safety data as a separate appendix. As in previous years, data are separated into offshore and onshore activity to improve consistency in the data collected. The offshore statistics cover offshore work only, whereas the inclusion of onshore work covers such areas as fabrication yards and office work. The statistics over the past thirteen years have been as follows:

	Overall								Offshore				Onshore					
	Contractors submitting data	Million hours worked	LTIs	LTIFR	Fatalities	Fatal Accident Rate	Recordable injuries	TRIR	Million hours worked	LTIs	LTIFR	Fatalities	Fatal Accident Rate	TRIR	Million hours worked	LTIFR	TRIR	Fatal Accident Rate
1997	23	47.6	236	4.96	3	6.3												
1998	32	52.9	257	4.86	2	3.8												
1999	28	52.8	196	3.72	4	7.6												
2000	31	65.6	227	3.46	5	7.6				4.25		10.1			1.05			
2001	32	54.5	162	2.97	4	7.3				3.77		10.1			0.86			
2002	32	197	244	1.24	3	1.52		62.1		2.96		4.83		135	0.44			0
2003	31	200	198	0.99	5	2.49		66.4	133	2	4	6.03		134	0.49			0.75
2004	36	145	164	1.13	3	2.06	645	72.8	120	1.65	2	2.75	8.87	72.2	0.61			1.39
2005	51	160	189	1.18	6	3.13	864	102	172	1.69	5	3.93	7.29	57.7	0.29	2.1		1.73
2006	74	221	226	1.02	6	2.72	914	186	196	1.06	6	3.23	4.35	35	0.86	3.05		0
2007	100	310	339	1.09	6	1.94	1356	252	315	1.25	6	2.38	4.68	57.7	0.42	3.05		0
2008	129	612	433	0.72	7	1.14	1531	2.5	465	341	0.74	6	1.08	2.53	148	0.64	2.4	1.35
2009	152	602	395	0.67	6	1.00	1530	2.54	474	340	0.73	6	1.27	2.72	127	0.43	1.88	0

Table 2 – Summary of IMCA safety statistics 1997-2009

## 2.1 Definitions

**Number of fatalities** – the total number of employees and others who died as a result of an accident

**Fatal accident rate (FAR)** – number of fatalities per 100,000,000 hours worked

**Number of lost time injuries (LTIs)** – comprises all accidental injuries (including fatalities and lost work day cases but excluding restricted work day cases). Further detail can be found in Appendix I

**Lost time injury frequency rate (LTIFR)** – analysed separately as offshore, onshore and overall statistics

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

**Total recordable injury rate (TRIR)** – the number of injuries and/or illnesses per 100 full-time workers and is calculated as:

$$\frac{\text{total number of recordable injuries} \times 1,000,000}{\text{total hours worked}}$$

The definition of injuries used is that of the US Occupational Safety and Health Administration (OSHA) and can be found in full at Appendix I. It should be noted that IMCA uses one million rather than 200000 man-hours as a basis for the calculation.

### 3 Contributors by Geographical Region

IMCA's regional sections enable members to communicate at a regional level, sharing best practice, networking and co-ordinating discussions with client and regulatory bodies. IMCA members join one of five geographical regions, based roughly around time-zones, depending on where their primary areas of operations are based. ICO members are international contractor members. These are the nine highest level international companies who are members of IMCA and who conduct work in all regions of the world. The Central & South America section is IMCA's newest section. As yet it has few contractor members, and none reported statistics this year. Additionally, it should be noted that the regional breakdown of statistics here refers to the office location of the member company submitting statistics, rather than the actual location of operations.

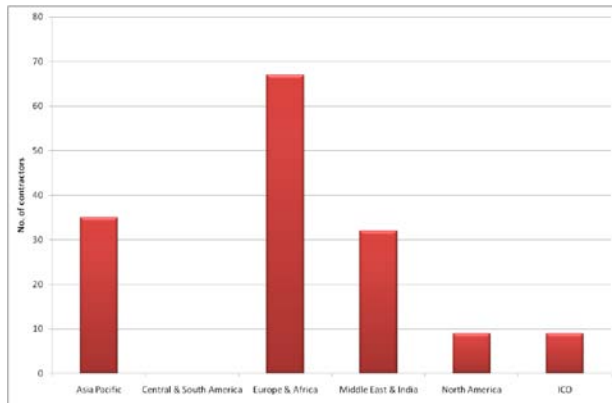


Figure 1 – Contributors by IMCA geographical region

IMCA region	Contributors
AP	35
EA	67
MEI	32
NA	9
ICO	9

Table 3 – Contributors by region

	FAR	LTIFR	TRIR
<b>Offshore</b>			
AP	0.00	0.30	1.56
EA	0.47	0.74	2.72
MEI	1.87	1.01	2.82
NA	4.79	0.62	2.22
ICO	1.54	1.12	4.60
<b>Overall</b>			
AP	0.00	0.29	1.59
EA	0.44	0.73	2.72
MEI	1.66	1.08	3.03
NA	4.25	0.64	2.47
ICO	0.66	0.64	2.69
<b>Onshore</b>			
AP	0.00	0.27	1.99
EA	0.00	0.73	2.79
MEI	0.00	1.67	4.70
NA	0.00	0.76	4.41
ICO	0.00	0.28	1.26

Table 4 – Lagging safety indicators by IMCA region

**Key: Please refer to the appendices for further definition of these rates and acronyms**

FAR	fatal accident rate	RAL	reporting activity level
TRIR	total recordable injury frequency rate	MVR	management visit ratio
LTIFR	lost time injury frequency rate	LLR	lessons learnt ratio
SOFR	safety observation frequency		

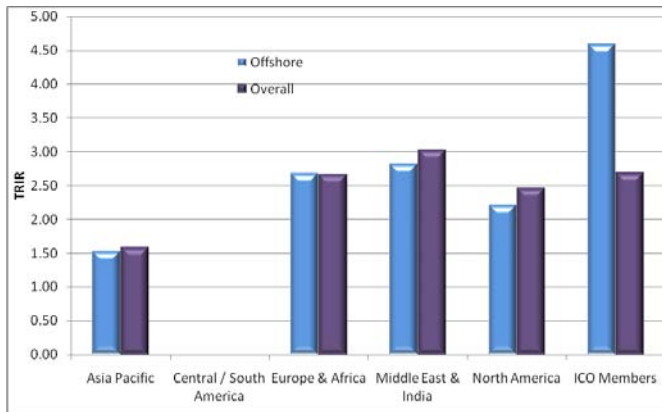


Figure 2 – Overall and Offshore TRIR by region

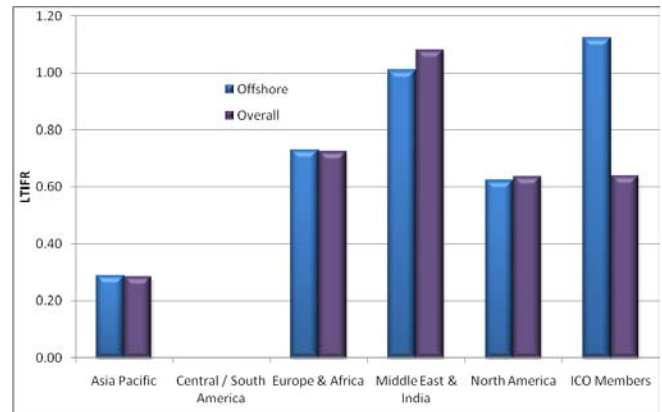


Figure 3 – Overall and Offshore LTIFR by region

#### 4 Contributors by IMCA Technical Division

IMCA members join one or more of the four technical divisions – Diving, Marine, Offshore Survey, and Remote Systems & ROV – depending on the work they are conducting. ICO members belong to all four technical divisions as they tend to conduct work in all four technical disciplines.

It is possible to see that Marine and Diving Division IMCA members are most likely to take part in the safety statistics exercise, but it is not possible, owing to the fact that members can join in one or more of the four technical divisions, to draw any conclusions about the safety performance of members in different divisions.

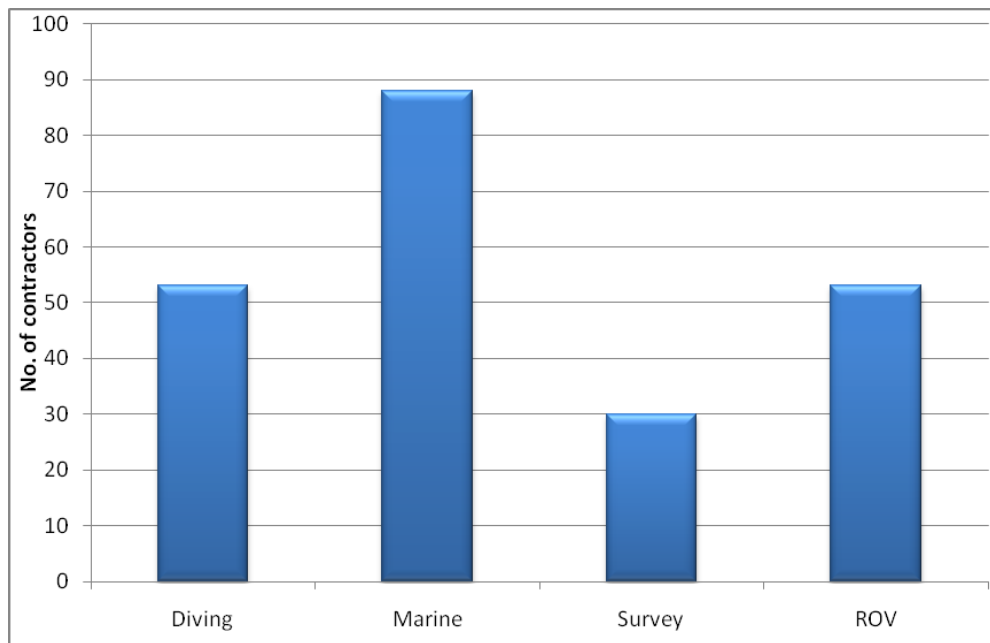


Figure 4 – Contributors by IMCA technical division

#### 5 Individual Company LTIFR and TRIR Statistics

The following tables show the important statistical rates for each of the 152 companies with an identifying number and a letter indicating the band into which they fall.

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.

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

Band	Hours Worked
A	<500,000
B	500,000-1,000,000
C	1,000,000-5,000,000
D	>5,000,000

Table 1 – Hours worked bands

Co	Band	Offshore LTIFR	Onshore LTIFR	Overall LTIFR	Offshore TRIR	Onshore TRIR	Overall TRIR
1	A	0.00	0.00	0.00	0.00	0.00	0.00
2	B	0.00	0.00	0.00	8.91	0.00	6.90
3	A	0.00	0.00	0.00	3.53	0.00	2.20
4	C	0.91	0.00	0.61	0.91	0.90	0.91
5	A	0.00	0.00	0.00	0.00	0.00	0.00
6	D	0.12	0.00	0.12	0.24	0.00	0.23
7	D	1.35	0.00	1.35	6.59	0.00	6.59
8	C	0.80	0.00	0.76	7.99	6.90	7.93
9	C	0.00	0.00	0.00	0.89	0.00	0.88
10	C	7.32	0.00	7.32	9.61	0.00	9.61
11	A	42.13	0.00	23.13	42.13	0.00	23.13
12	A	0.00	0.00	0.00	4.32	0.00	4.32
13	D	0.41	0.06	0.15	3.56	0.81	1.47
14	B	4.13	0.00	3.48	4.13	0.00	3.48
15	A	0.00	0.00	0.00	0.00	0.00	0.00
16	C	2.25	0.00	2.04	6.76	3.58	6.46
17	D	0.00	0.00	0.00	0.07	9.86	0.22
18	A	8.10	0.00	8.10	12.15	0.00	12.15
19	D	1.29	0.87	1.17	3.11	3.04	3.09
20	A	0.00	0.00	0.00	2.80	0.00	2.51
21	B	8.20	0.00	7.41	14.75	0.00	13.33
22	A	0.00	0.00	0.00	0.00	0.00	0.00
23	A	0.00	0.00	0.00	13.47	0.00	13.47
24	A	0.00	0.00	0.00	0.00	0.00	0.00
25	C	1.96	3.23	2.12	6.36	9.69	6.79
26	B	2.64	1.76	2.11	7.91	7.03	7.38
27	B	0.00	0.00	0.00	3.60	4.54	4.02
28	D	1.38	0.00	1.24	5.73	0.00	5.13
29	D	0.17	0.00	0.17	0.23	0.00	0.23
30	B	0.00	0.00	0.00	17.93	3.02	12.38
31	D	0.04	0.00	0.04	0.48	0.00	0.47
32	A	0.00	0.00	0.00	6.59	0.00	3.86
33	A	0.00	0.00	0.00	0.00	0.00	0.00
34	A	0.00	0.00	0.00	0.00	0.00	0.00
35	C	0.00	0.00	0.00	2.26	0.00	2.02
36	A	77.52	157.04	88.75	103.36	314.07	133.13
37	C	0.66	0.00	0.66	4.64	0.00	4.64
38	B	1.87	0.00	1.87	7.48	0.00	7.48
39	C	0.00	0.00	0.00	0.86	0.00	0.71
40	D	0.02	0.00	0.02	0.06	0.00	0.06
41	D	0.88	0.00	0.84	1.76	0.00	1.69
42	C	3.83	0.00	3.83	10.21	0.00	10.21
43	D	1.81	0.00	1.81	7.53	0.00	7.53
44	C	1.89	0.00	1.89	5.67	0.00	5.67
45	C	0.00	0.00	0.00	0.92	0.00	0.69
46	A	0.00	0.00	0.00	7.17	0.00	4.90
47	A	0.00	0.00	0.00	0.00	0.00	0.00
48	B	3.71	0.00	1.47	11.13	0.00	4.40
49	C	1.18	0.00	1.06	5.33	10.26	5.84
50	A	0.00	0.00	0.00	0.00	0.00	0.00
51	D	0.15	0.00	0.14	1.35	0.00	1.29
52	D	0.34	0.00	0.34	3.54	0.00	3.54
53	C	3.07	0.00	3.07	12.56	0.00	12.56
54	A	0.00	0.00	0.00	0.00	35.06	17.83
55	A	0.00	0.00	0.00	0.00	0.00	0.00
56	C	0.00	0.00	0.00	3.19	7.34	3.60
57	C	1.93	0.00	1.85	4.83	0.00	4.62
58	A	26.73	38.38	29.27	26.73	38.38	29.27
59	A	9.37	10.42	9.61	18.75	10.42	16.83
60	D	1.21	0.00	1.21	2.54	0.00	2.54
61	C	0.00	0.00	0.00	2.67	0.00	2.38
62	D	1.16	0.09	0.48	6.79	0.68	2.95
63	D	0.40	0.00	0.40	1.60	0.00	1.60
64	A	0.00	0.00	0.00	0.00	0.00	0.00
65	A	0.00	0.00	0.00	0.00	0.00	0.00
66	C	2.42	0.00	2.17	7.27	0.00	6.52
67	C	3.66	2.72	3.37	18.30	21.72	19.36
68	C	1.06	0.48	0.66	4.22	1.44	2.31
69	A	6.11	0.00	5.45	18.32	0.00	16.34
70	A	0.00	0.00	0.00	0.00	0.00	0.00
71	D	0.84	0.79	0.82	3.15	4.58	3.79
72	B	0.00	0.00	0.00	0.00	0.00	0.00
73	B	1.39	0.00	1.23	1.39	0.00	1.23
74	C	3.11	0.00	2.94	5.18	0.00	4.90
75	C	0.35	0.00	0.35	0.35	0.00	0.35
76	C	0.00	0.00	0.00	2.15	0.00	2.01

Co	Band	Offshore LTIFR	Onshore LTIFR	Overall LTIFR	Offshore TRIR	Onshore TRIR	Overall TRIR
77	D	0.18	0.00	0.18	0.73	0.00	0.73
78	C	1.77	0.00	1.26	3.53	0.00	2.52
79	A	0.00	0.00	0.00	2.48	0.00	2.48
80	A	0.00	0.00	0.00	0.00	0.00	0.00
81	A	0.00	0.00	0.00	0.00	0.00	0.00
82	A	0.00	0.00	0.00	0.00	0.00	0.00
83	D	0.00	0.00	0.00	1.21	0.00	1.21
84	A	8.89	0.00	5.51	17.78	0.00	11.01
85	A	0.00	0.00	0.00	0.00	0.00	0.00
86	C	1.24	0.00	0.98	5.35	0.00	4.26
87	A	0.00	0.00	0.00	0.00	0.00	0.00
88	B	4.38	0.00	2.96	8.77	0.00	5.91
89	C	1.34	0.00	0.87	3.36	0.00	2.17
90	A	0.00	0.00	0.00	0.00	0.00	0.00
91	A	0.00	0.00	0.00	6.30	0.00	4.17
92	C	1.26	0.00	1.21	2.52	0.00	2.43
93	C	4.61	0.53	2.81	5.87	3.70	4.91
94	D	1.76	0.00	1.76	5.19	0.00	5.19
95	A	0.00	0.00	0.00	2.70	0.00	2.70
96	D	1.16	0.39	0.76	5.23	1.71	3.38
97	C	1.21	0.00	1.21	3.03	0.00	3.03
98	C	0.00	0.00	0.00	7.58	4.85	6.74
99	A	0.00	0.00	0.00	2.37	0.00	2.37
100	A	0.00	0.00	0.00	0.00	0.00	0.00
101	B	0.00	0.00	0.00	0.00	0.00	0.00
102	C	0.00	0.00	0.00	0.94	0.00	0.80
103	A	0.00	0.00	0.00	0.00	0.00	0.00
104	A	0.00	0.00	0.00	0.00	0.00	0.00
105	A	7.01	0.00	5.25	14.02	0.00	10.50
106	A	0.00	0.00	0.00	4.34	15.28	6.76
107	B	0.00	0.00	0.00	2.98	0.00	2.45
108	C	0.00	2.57	1.02	0.56	5.14	2.38
109	A	0.00	0.00	0.00	0.00	0.00	0.00
110	A	15.63	0.00	15.63	41.67	0.00	41.67
111	A	4.95	0.00	4.69	4.95	0.00	4.69
112	A	0.00	0.00	0.00	0.00	21.19	18.30
113	A	0.00	0.00	0.00	3.94	0.00	3.94
114	C	4.35	0.00	4.35	13.06	0.00	13.06
115	C	0.87	0.00	0.84	0.87	0.00	0.84
116	C	0.90	0.00	0.90	8.08	0.00	8.08
117	A	0.00	0.00	0.00	0.00	0.00	0.00
118	B	1.67	0.00	1.67	5.00	0.00	5.00
119	A	13.04	0.00	3.06	13.04	0.00	3.06
120	B	0.00	0.00	0.00	2.24	0.00	2.24
121	D	1.11	1.57	1.22	2.72	1.57	2.45
122	A	0.00	0.00	0.00	0.00	0.00	0.00
123	A	0.00	0.00	0.00	5.95	0.00	5.60
124	C	0.99	0.00	0.86	2.49	0.00	2.16
125	A	0.00	0.00	0.00	3.97	0.00	3.18
126	C	1.21	0.00	1.16	6.03	0.00	5.78
127	A	0.00	0.00	0.00	5.51	0.00	3.97
128	D	0.13	0.00	0.13	0.54	0.00	0.54
129	A	0.00	0.00	0.00	0.00	0.00	0.00
130	A	0.00	0.00	0.00	0.00	0.00	0.00
131	B	0.00	0.00	0.00	0.00	0.00	0.00
132	D	0.17	0.00	0.17	2.93	0.00	2.93
133	A	0.00	0.00	0.00	0.00	0.00	0.00
134	A	0.00	0.00	0.00	0.00	0.00	0.00
135	C	0.65	0.00	0.65	4.85	0.00	4.85
136	C	0.57	0.00	0.51	1.71	0.00	1.53
137	B	3.51	0.00	3.51	5.84	0.00	5.84
138	D	0.00	0.18	0.17	0.00	1.25	1.18
139	A	0.00	0.00	0.00	22.19	0.00	22.19
140	A	0.00	0.00	0.00	7.48	0.00	7.48
141	A	0.00	0.00	0.00	0.00	0.00	0.00
142	A	0.00	0.00	0.00	0.00	0.00	0.00
143	C	1.92	0.00	1.88	1.92	0.00	1.88
144	B	5.84	0.00	1.97	17.53	0.00	5.90
145	D	0.52	0.00	0.52	1.96	0.00	1.96
146	D	0.24	2.96	0.91	0.48	8.15	2.37
147	D	0.73	0.41	0.50	4.53	1.63	2.44
148	D	0.13	0.00	0.13	0.66	0.00	0.65
149	A	0.00	0.00	0.00	6.02	0.00	6.02
150	C	0.53	0.00	0.52	5.31	0.00	5.20
151	C	0.00	0.00	0.00	0.55	0.00	0.55
152	A	5.78	7.48	6.52	40.44	40.89	42.38
<b>IMCA</b>		<b>0.73</b>	<b>0.43</b>	<b>0.66</b>	<b>2.72</b>	<b>1.88</b>	<b>2.54</b>

Table 6 – Individual company LTIFR and TRIR statistics 2009

## 6 Hours Worked Banding

In order for members to identify how their company compares to others of like size, contributing contracting companies have been divided into four bands according to their annual number of overall working hours.

A “pareto” or “80-20” analysis of the contributed man-hours tells us that 30 of the 152 companies taking part in the exercise contribute 80% of the man-hours. Eleven of the largest contributors worked half of all the contributed man-hours.

Eighteen contributors (15 last year and 9 in 2007) worked more than ten million man-hours. Four contributors worked more than 40 million man-hours.

Band	Hours worked	Companies in Band						
		2003	2004	2005	2006	2007	2008	2009
A	<500,000	11	15	17	27	33	44	64
B	500,000-1,000,000	4	3	9	13	18	13	17
C	1,000,000-5,000,000	9	11	16	21	30	47	42
D	>5,000,000	7	7	9	13	19	25	29

Table 7 – No. of companies in each band

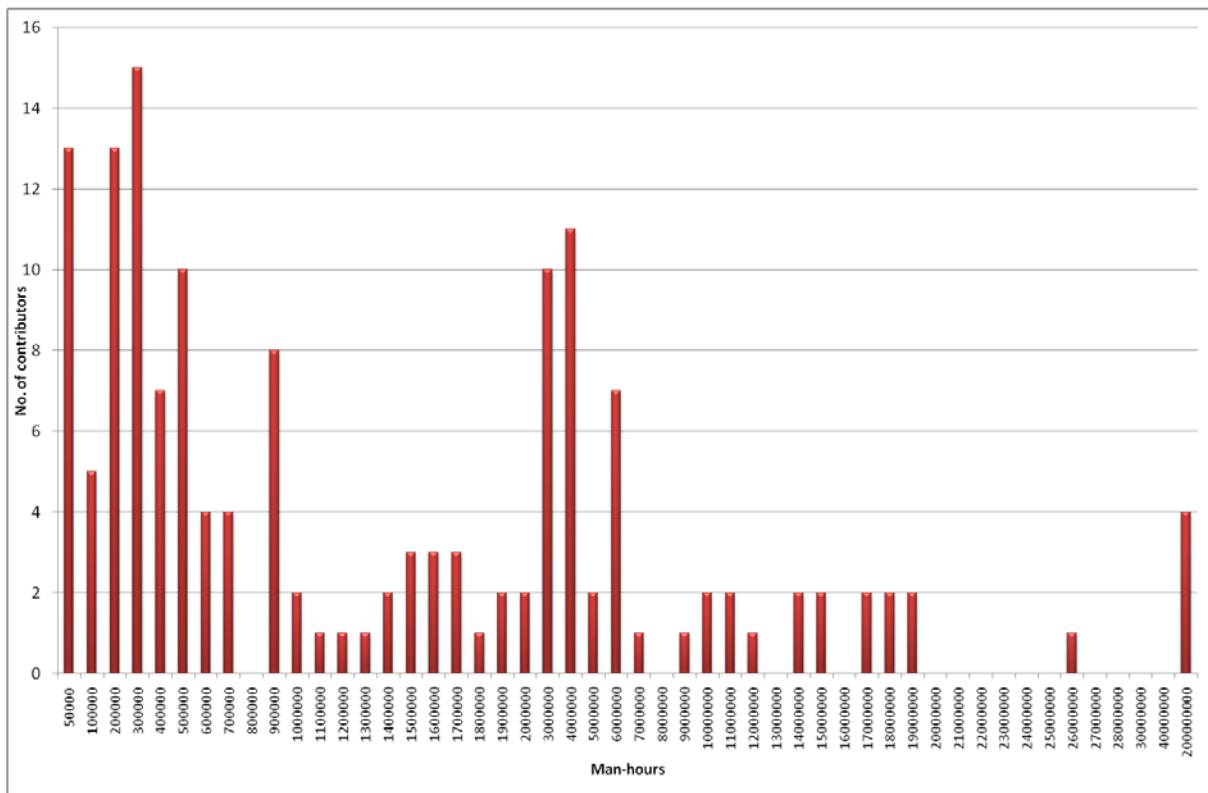


Figure 5 – No. of companies against size (overall man-hours)



## 6.1 Indicators and Statistics by Company Bands

	FAR	LTI	LTIFR	TRI	TRIR	Med Trt	RWC	First Aid	Near Miss
<b>Offshore</b>									
Band A	0.00	25	2.27	81	7.36	42	14	112	213
Band B	10.35	16	1.76	56	5.79	28	11	155	78
Band C	1.14	134	1.55	432	4.95	208	89	1102	988
Band D	1.09	165	0.46	722	1.97	353	200	2542	2712
<b>Onshore</b>									
Band A	0.00	5	1.67	15	5.01	7	3	20	27
Band B	0.00	1	0.30	7	2.13	5	1	127	20
Band C	0.00	7	0.54	35	2.72	17	11	97	96
Band D	0.00	42	0.39	182	1.68	87	53	764	714
<b>Overall</b>									
Band A	0.00	30	2.14	96	6.86	49	17	132	240
Band B	7.72	17	1.39	63	4.86	33	12	282	98
Band C	1.00	141	1.42	467	4.66	225	100	1199	1084
Band D	0.84	207	0.44	904	1.91	440	253	3306	3426

Table 10 – Lagging indicators and statistics by company band 2009

Note: Actual numbers of fatal accidents have been omitted to assist with preserving anonymity.

	Safety Obs	SOFR	Management Visits	MVR	RAL	Safety Bulletins	LLR
Band A	12298	177.01	1663	23.94	65.34	1332	19.17
Band B	21310	339.75	389	6.20	59.95	463	7.38
Band C	114355	229.93	4064	8.17	52.11	1222	2.46
Band D	480561	202.61	34771	14.66	28.57	859	0.36

Table 11 – Leading indicators and statistics by company band 2009

**Key: Please refer to the appendices for further definition of these rates and acronyms.**

FAR	fatal accident rate	RWC	restricted workday cases
TRI	total recordable injuries	TRIR	total recordable injury frequency rate
LTI	lost time injury	LTIFR	lost time injury frequency rate
SOFR	safety observation frequency	RAL	reporting activity level
MVR	management visit ratio	Med Trt	medical treatment cases
LLR	lessons learnt ratio	RWC	restricted workday case

## 6.2 LTIFR in Company Bands

Table 12 shows the overall LTIFR of companies within the defined bands of number of hours worked, and for the past four years, TRIR. Figure 6 shows that between 2007 and 2008 there was a significant increase in LTIFR amongst the smaller companies; it is pleasing to note that this trend has not continued and the LTIFR for Band A companies is once again falling.

		2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>LTIFR</b>	Band A	8.91	5.14	3.88	3.87	2.85	2.64	2.21	3.29	2.14
	Band B	3.13	5.15	0.96	2.71	3.07	2.02	1.34	1.62	1.39
	Band C	4.37	1.75	0.92	1.65	1.59	1.37	1.44	1.19	1.42
	Band D	2.15	1.10	0.87	1.53	0.83	0.74	0.94	0.56	0.44
<b>TRIR</b>	Band A					11.0	10.16	11.74	9.76	6.86
	Band B					11.3	8.29	7.86	6.29	4.86
	Band C					6.02	5.08	6.07	3.79	4.66
	Band D					4.57	3.19	3.42	2.02	1.91

Table 12 – Overall LTIFR and TRIR by company band

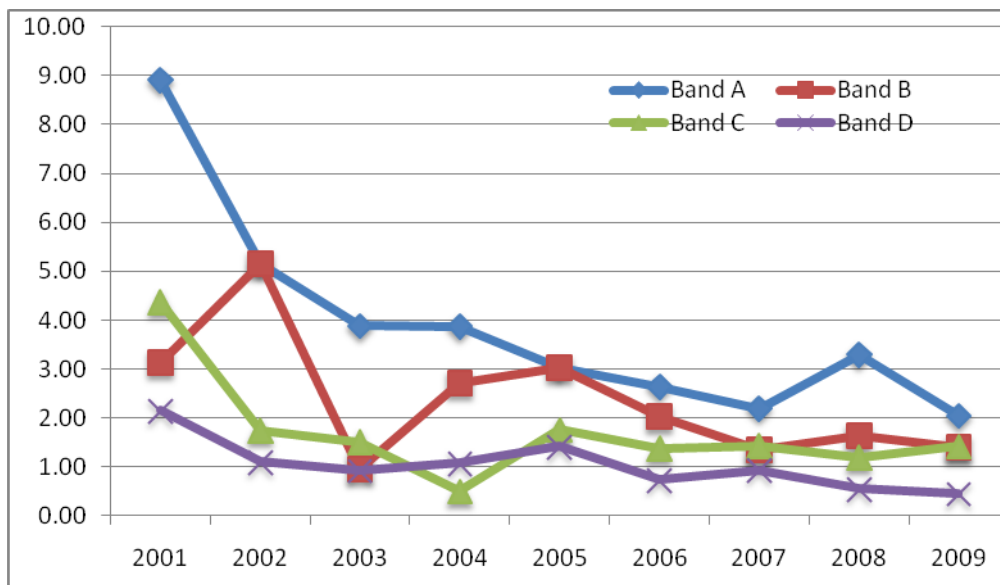


Figure 6 – Overall LTIFR for company bands

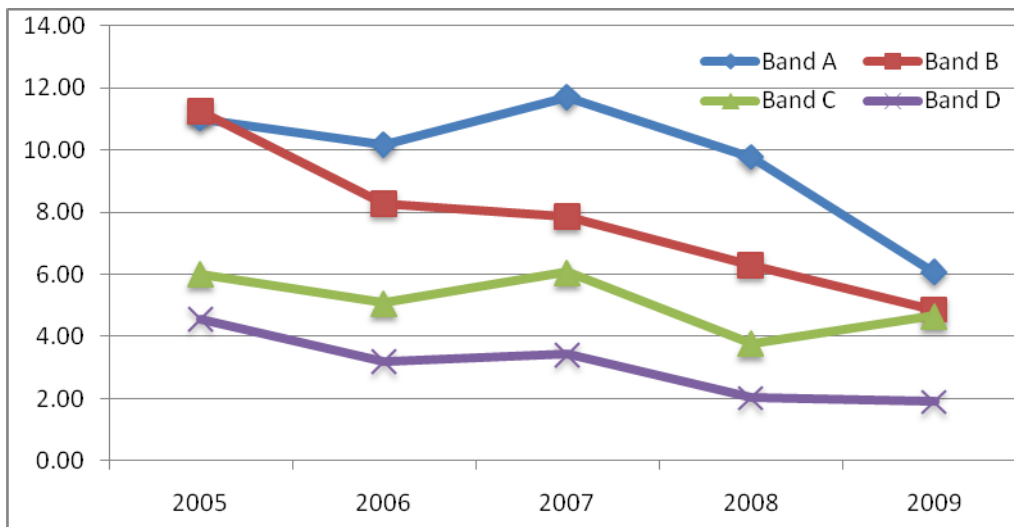


Figure 7 – Overall TRIR for company bands

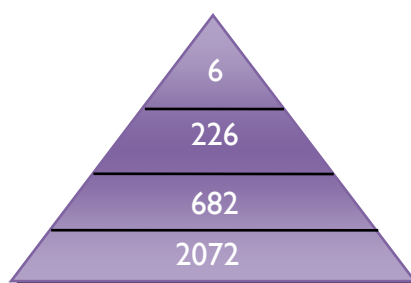
## 7 Comment and Analysis

### 7.1 Accident Triangles

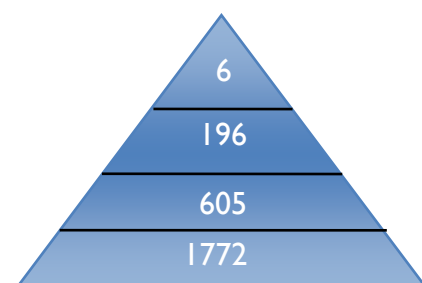
Accident triangles can be used to demonstrate the relationship between fatalities and minor accidents.

Year	Overall				Offshore			
	First Aid	RWC/ Med Trt	Lost Time Injuries	Fatalities	First aid	RWC/ Med Trt	Lost Time Injuries	Fatalities
2009	4919	1129	395	6	3911	945	340	6
2008	3877	1090	433	7	2991	830	341	6
2007	3752	1011	339	6	3200	859	315	6
2006	2072	682	226	6	1772	605	196	6
2005	1812	669	189	5	1703	566	172	5
2004			164	3	1938	523	120	2
2003			198	5	3776	466	133	4

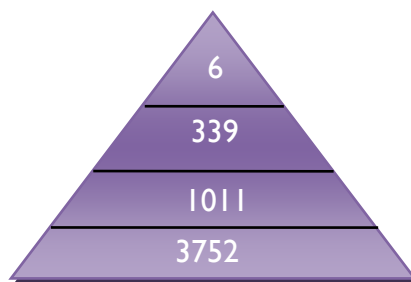
Table 13 – Accident triangle data 2009



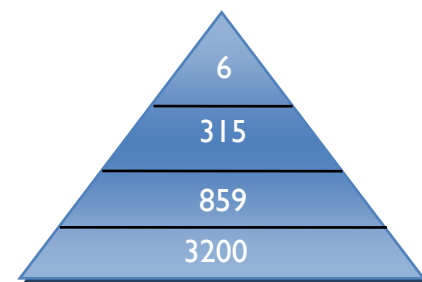
2006 Overall



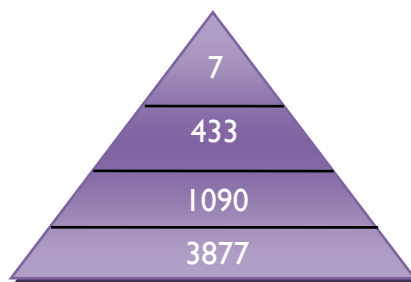
2006 Offshore



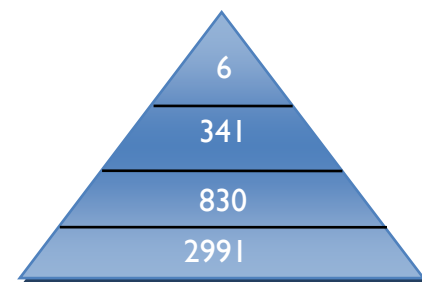
2007 Overall



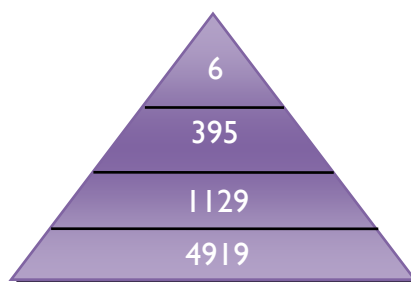
2007 Offshore



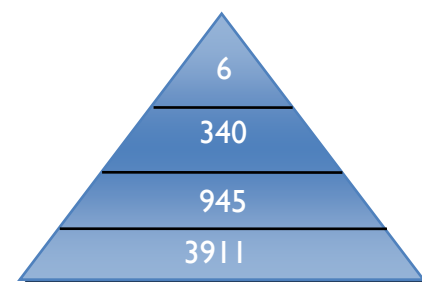
2008 Overall



2008 Offshore



2009 Overall



2009 Offshore

## 7.2 Direct Causes of Lost Time Injuries

IMCA categorises information on the direct causes of Lost Time Injuries into 12 categories agreed by the SEL Core Committee, as tabulated below.

LTI category	No of LTIs					Total
	AP	EA	MEI	NA	ICO	
A) Falls from height	2	9	2	4	9	26
B) Falls on the same level (including slips & trips)	7	40	17	11	15	90
C) Struck against	3	26	12	2	13	56
D) Struck by moving/falling objects	6	24	6	9	25	70
E) Exposure to mechanical vibration	0	1	0	0	0	1
F) Exposure to sound	0	0	0	0	0	0
G) Muscle stress and repetitive movement	3	16	9	14	6	48
H) Contact with electricity	0	2	0	0	0	2
I) Contact/exposure to heat/cold	1	6	6	0	3	16
J) Contact/exposure with hazardous substances	2	10	1	0	0	13
K) Entrapment	1	17	4	2	16	40
L) Asphyxiation	0	1	0	0	0	1
M) Other	1	15	7	0	9	32
<b>TOTAL</b>	<b>26</b>	<b>167</b>	<b>64</b>	<b>42</b>	<b>96</b>	<b>395</b>

Table 14 – Causes of LTIs by IMCA geographical region

There were 395 lost time injuries recorded by IMCA members this year. 'Falls on the same level' was the most common direct cause of LTIs for IMCA members, causing 90 or 23% of recorded LTIs, followed by 'Struck by moving or falling objects' which formed 70 or 18% of recorded LTIs for IMCA members. The third most common cause was 'Struck against' with 14% of LTIs and 'Muscle stress and repetitive strain' with 12% of recorded LTIs.

Reducing the quantity of uncategorised LTIs will remain a target for the future.

In 2008 the most common cause of LTIs was 'Struck by moving/falling objects'; it will be seen that this, whilst still a common cause of injuries, is not the most common cause in 2009.

Other interesting trends to note are:

The most common cause of injuries amongst North American contributors is 'Muscle stress and repetitive movement';

Amongst the nine ICO members 'Entrapment' is a surprise second-most common cause of injuries.

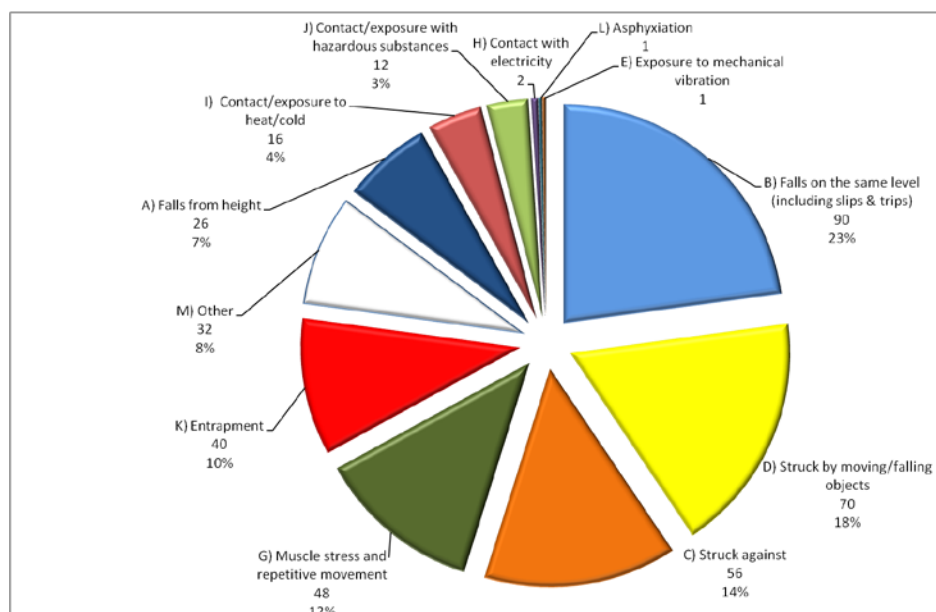


Figure 8 – Direct causes of lost time injuries

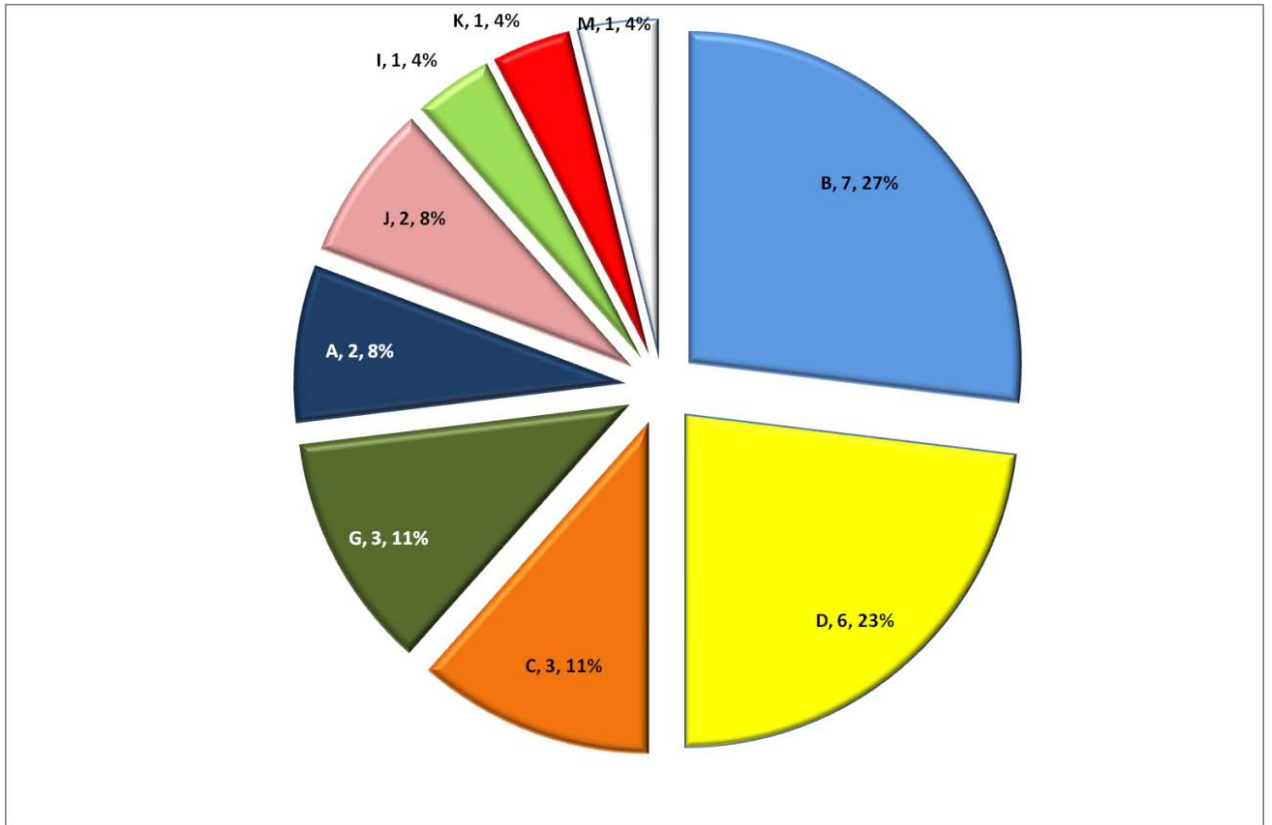


Figure 9 – Causes of LTIs in Asia Pacific region

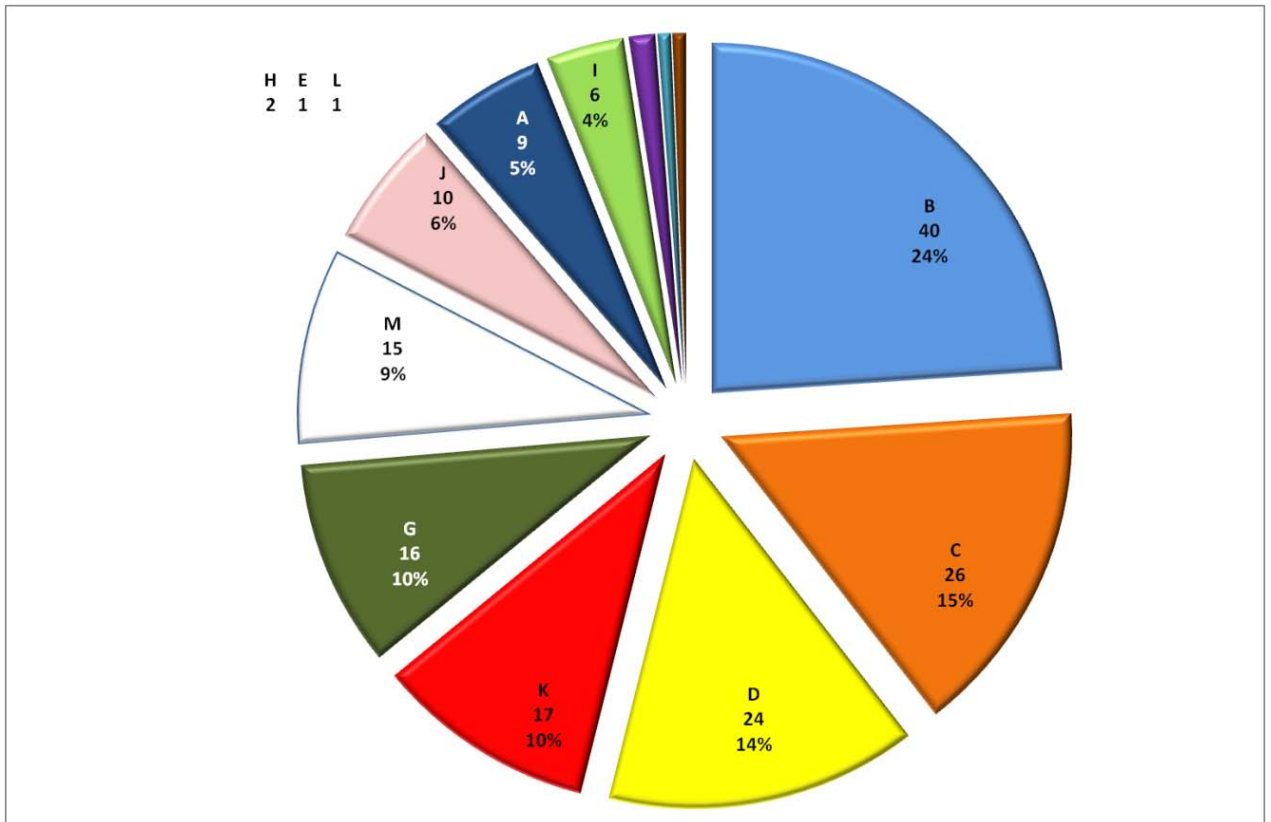


Figure 10 – Causes of LTIs in Europe & Africa region

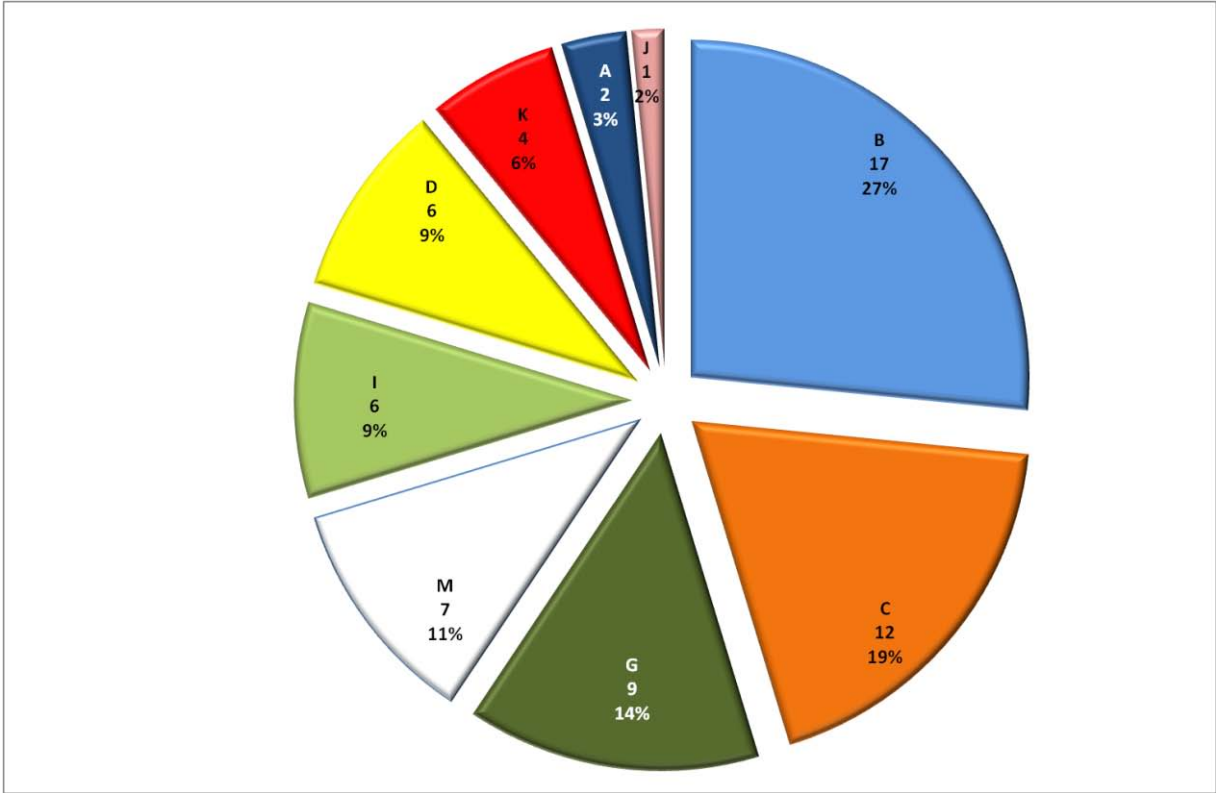


Figure 11 – Causes of LTIs in Middle East & India region

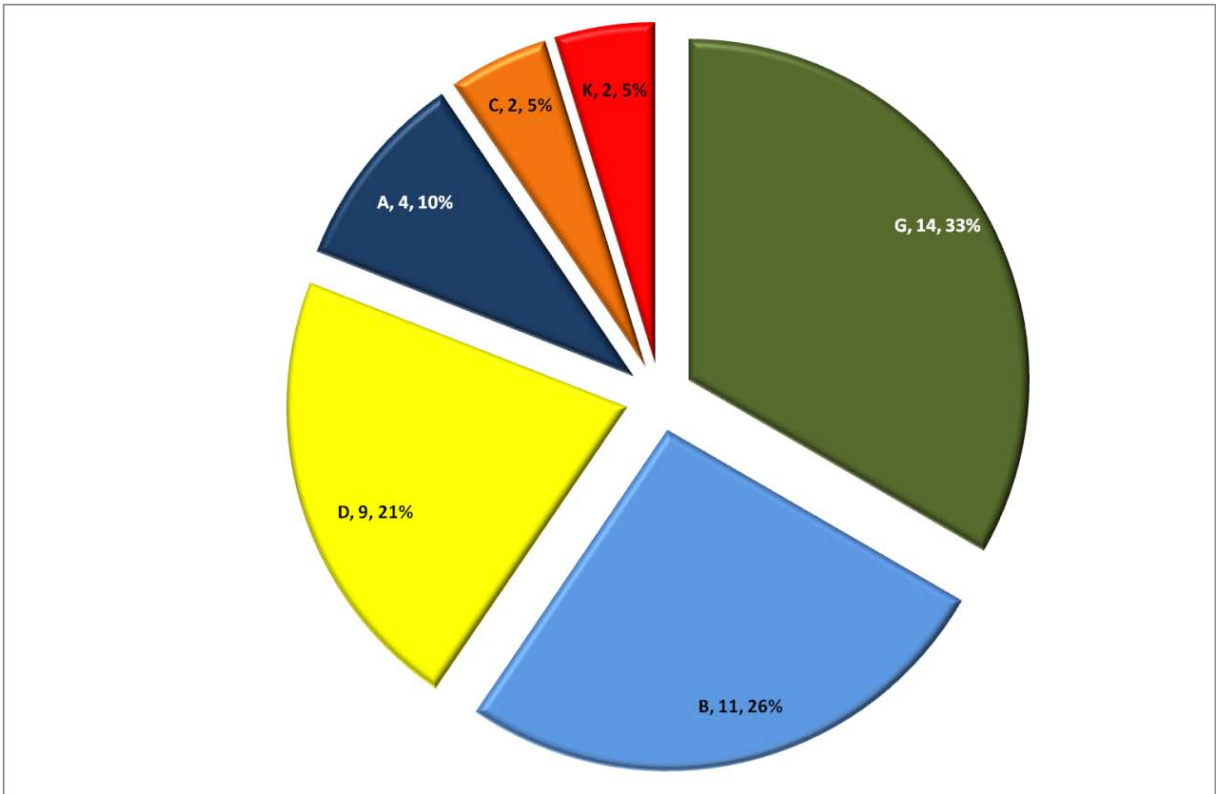


Figure 12 – Causes of LTIs in North America region

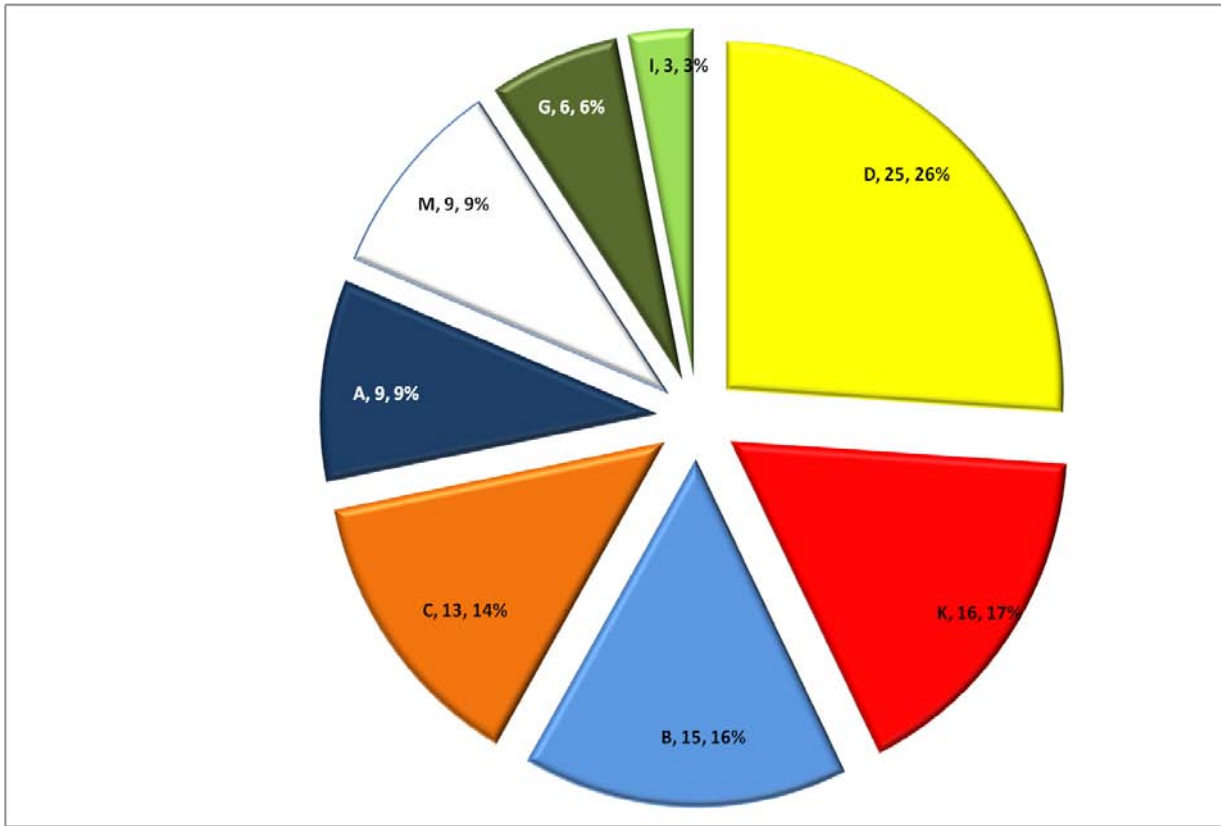


Figure 13 – Causes of LTIs amongst ICO members

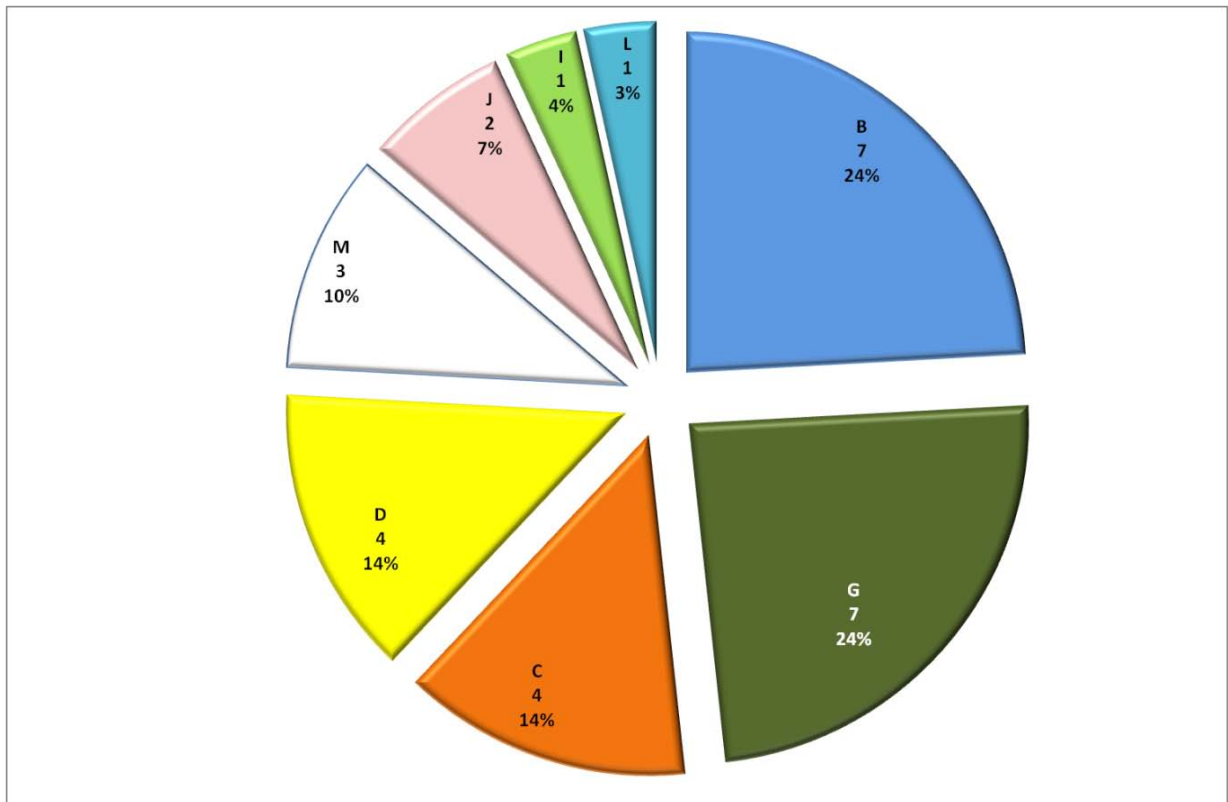


Figure 14 – Causes of LTIs in A-band members

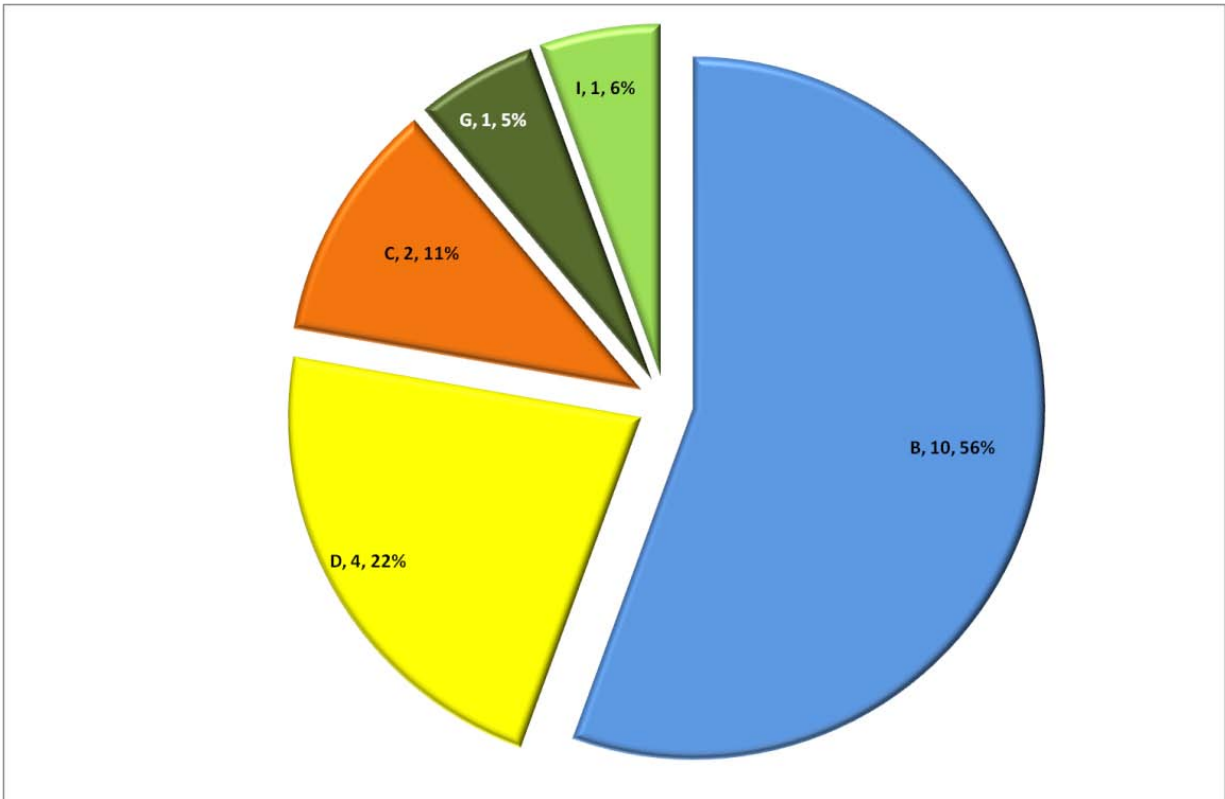


Figure 15 – Causes of LTIs in B-band members

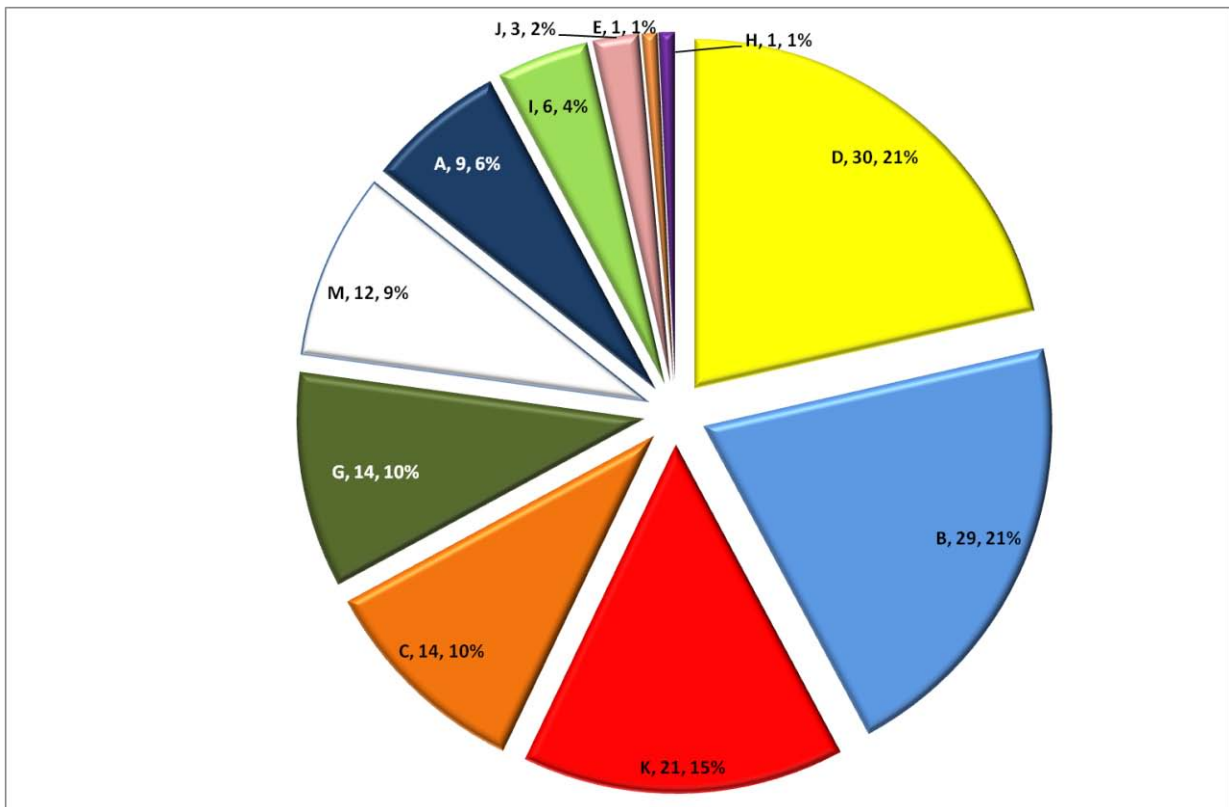


Figure 16 – Causes of LTIs in C-band members



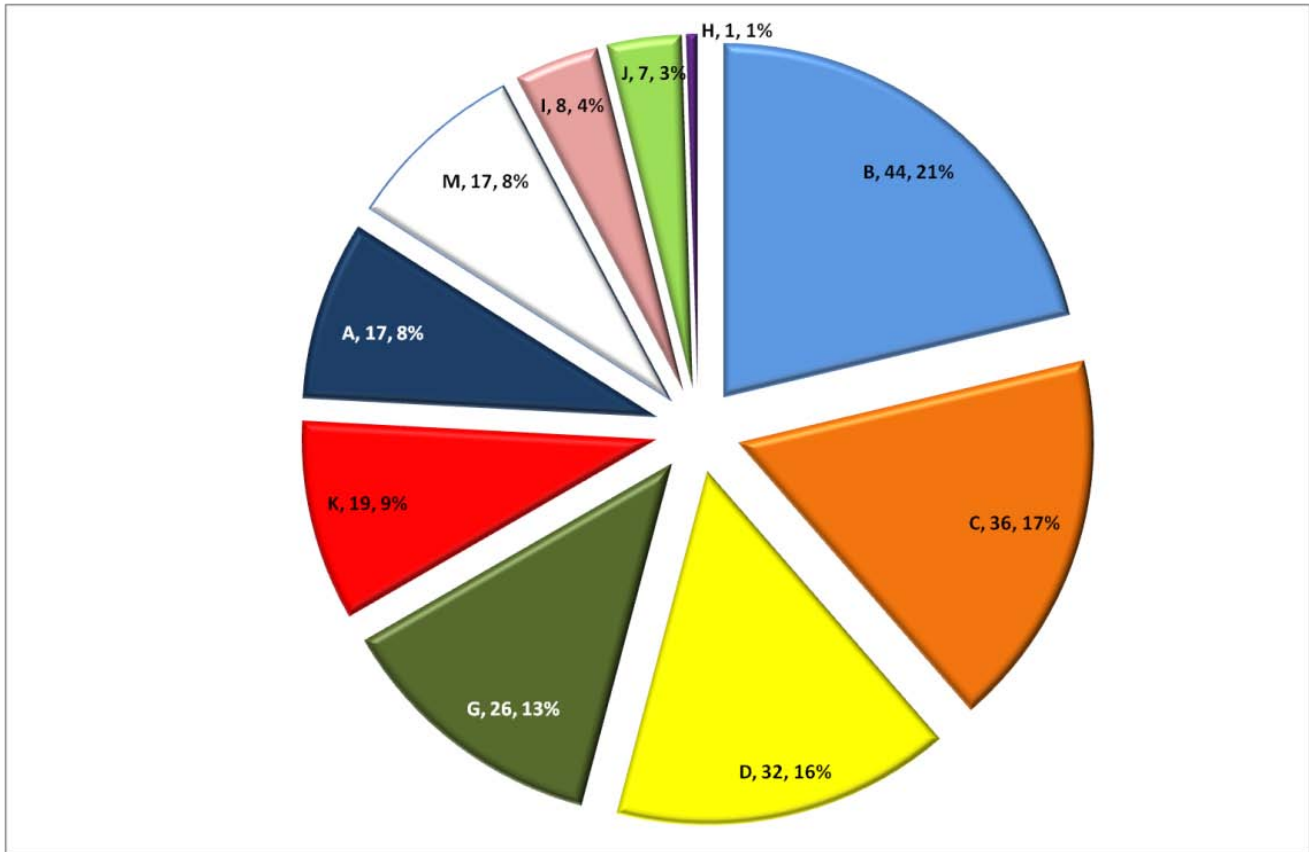


Figure 17 – Causes of LTIs in D-band members

**Key:**

- A Falls from height
- B Falls on the same level (including slips & trips)
- C Struck against
- D Struck by moving/falling objects
- E Exposure to mechanical vibration
- F Exposure to sound
- G Muscle stress and repetitive movement
- H Contact with electricity
- I Contact/exposure to heat/cold
- J Contact/exposure with hazardous substances (including biological agents)
- K Entrapment
- L Asphyxiation
- M Other

### 7.3 Lost Time Injury Frequency Rates (LTIFR)

The offshore LTIFR for 2009 has improved slightly to 0.73 from 0.74 in 2008. The overall LTIFR has also shown an improvement from 0.72 in 2008 to 0.66 this year.

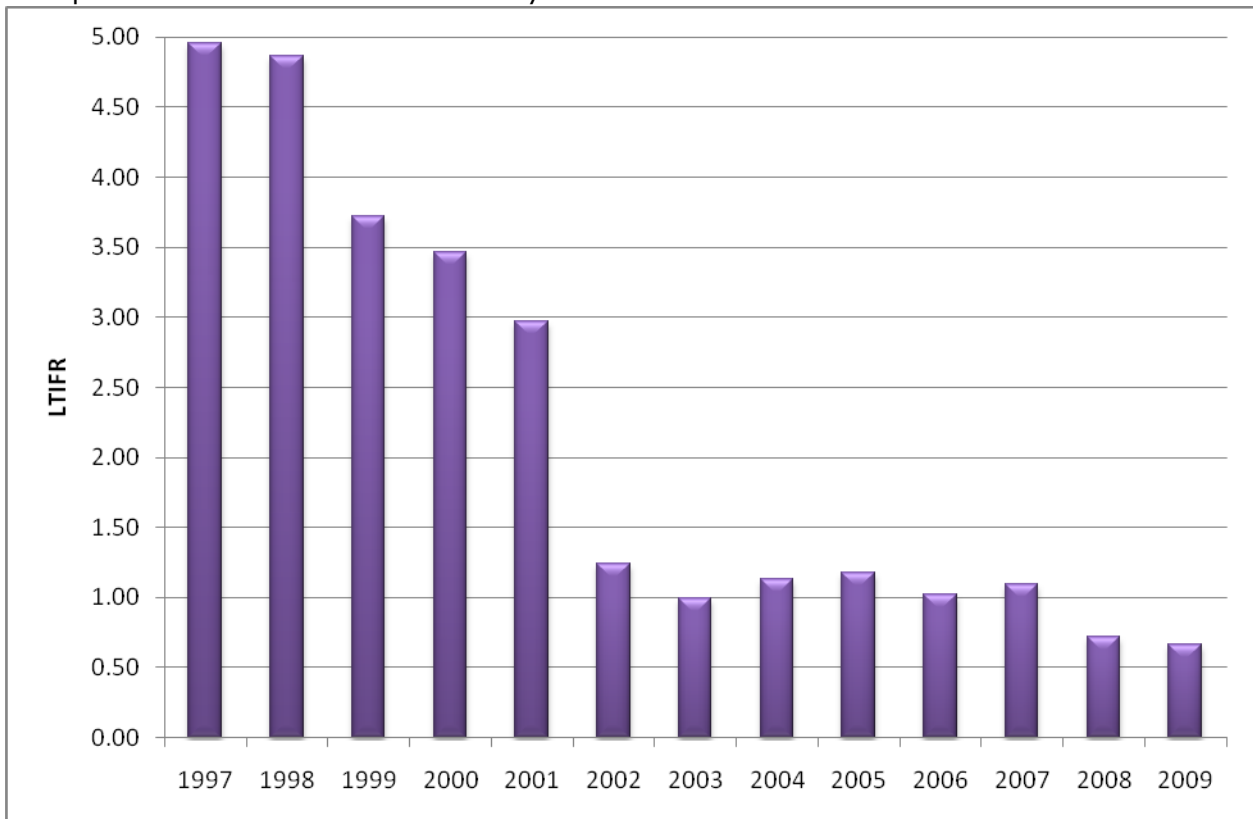


Figure 18 – Overall LTIFR

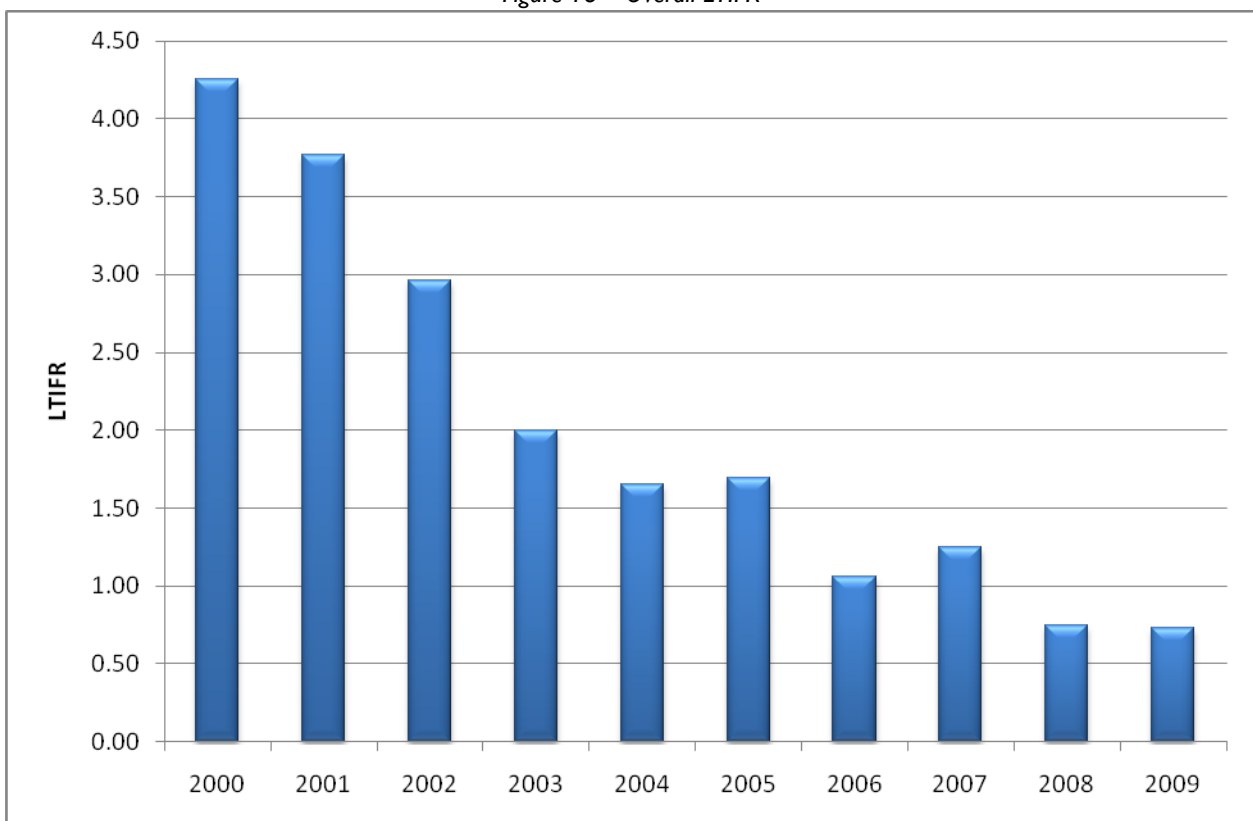


Figure 19 – Offshore LTIFR

## 7.4 Total Recordable Injury Rates (TRIR)

Total recordable injuries have been tracked for a number of years as a more reliable pointer to safety in the industry. This year, the **offshore TRIR** has increased to 2.72 from 2.53 in 2008. The **onshore TRIR** was 1.88, an improvement on the 2008 figure of 2.40, and the **overall TRIR** was 2.54, a slight increase on the 2008 figure of 2.50.

Year	Overall TRIR	Offshore TRIR	Onshore TRIR
2004		8.87	
2005	5.42	7.29	2.10
2006	4.14	4.35	3.06
2007	4.38	4.68	3.05
2008	2.50	2.50	2.40
2009	2.54	2.72	1.88

Table 15 – Total recordable injury rates (TRIR) 2005-2009

There were 631 offshore medical treatment cases reported in 2009. This is an increase in reporting compared to 2008, when there were 581 offshore medical treatment cases reported;

There were 314 offshore restricted work injury reports reported in 2009, compared to 249 offshore restricted work injury reports reported in 2008;

Members reported that there were 3911 offshore first aid cases in 2009 compared with 2991 in 2008, and 3991 offshore near miss reports in 2009, compared with in 3469 in 2008;

There were 4919 first aid cases overall and 4848 near miss reports overall during 2009, compared to 3877 first aid cases overall and 3936 near miss reports overall during 2008.

## 7.5 Fatal Accident Rate (FAR)

It should be noted when considering the fatal accident rate and the safety statistics as a whole, slightly less than half of all IMCA contractor members did not take part in the safety statistics exercise. There has been considerable discussion of the importance of fully capturing all workplace fatalities, to work towards the goal of eliminating them completely. IMCA intends to work closely with its members and other trade associations to ensure that all marine contracting industry workplace fatalities are properly recorded.

IMCA members reported six offshore fatalities during 2009. Our focus remains on lessons learnt and information sharing to ensure that these incidents never recur. To this end, IMCA is publishing brief and anonymous information regarding the fatalities that have been recorded.

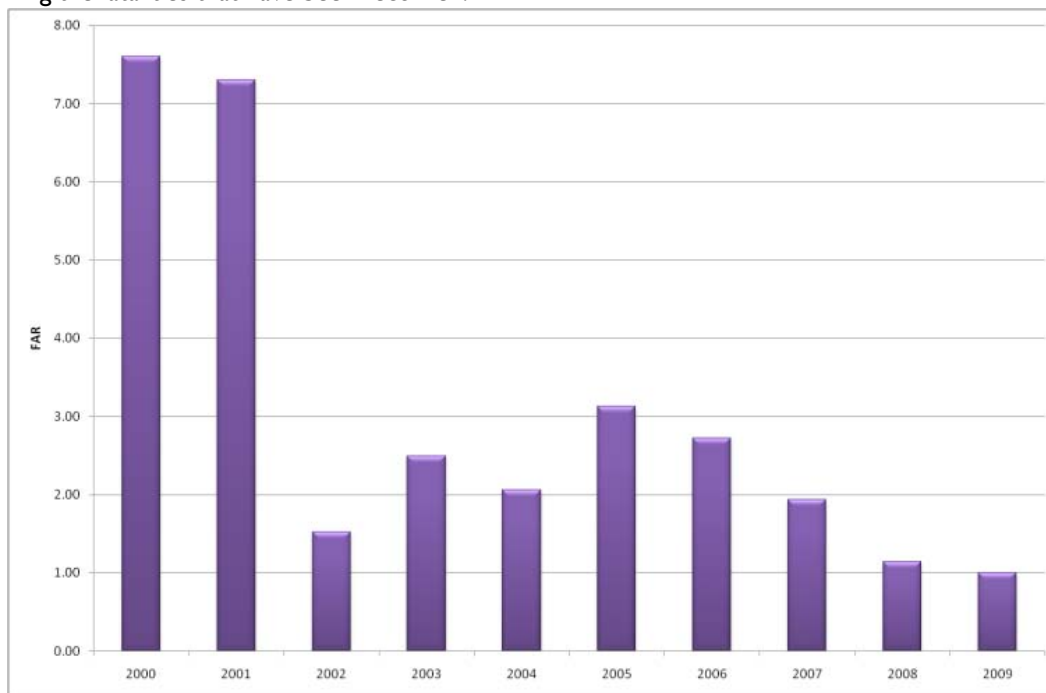


Figure 20 – Overall FAR 2000-2009

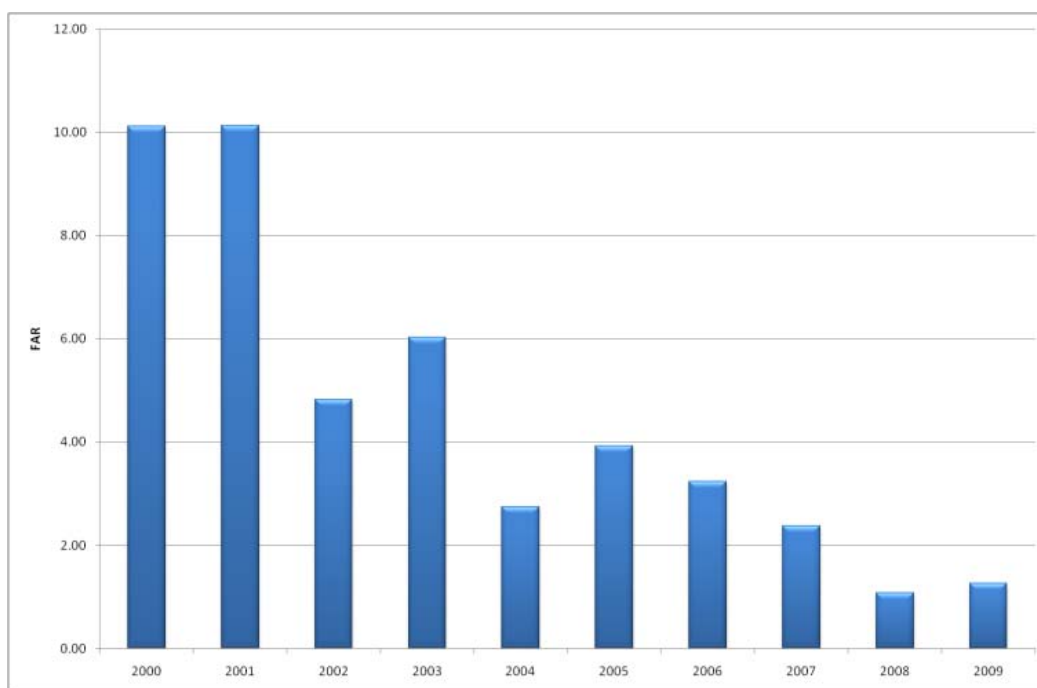


Figure 21 – Offshore FAR 2000-2009

### 7.5.1 Fatal Accident Information

The SEL Committee has suggested that basic information is collected about each fatality. This was accomplished for this year's statistics with the following results:

#### Basic information on fatalities – 2009

captain shot by pirates;  
wire stopper arrangement failed and the decked buoy hit an AB who was fatally injured;  
crewman caught between on rig floor and crushed;  
crewman lost in helicopter crash;  
winch failed and heavy object fell on crewman;  
man lost overboard.

## 8 Comparison with Other Published Figures

### 8.1 International Association of Drilling Contractors (IADC) - 2009

IADC represents offshore and onshore drilling contractors. In 2009 IADC members reported 2581 recordable injuries (of which 714 were offshore), 744 lost time injuries of which 208 were offshore, and 32 fatalities of which 7 were offshore. Based on offshore hours of approximately 178 million man-hours and on a base figure of one million man-hours rather than 200,000, this equates to an offshore TRIR of 4.01 and LTIFR of 1.17.

Further detailed information on the IADC's 2009 statistics can be downloaded from [www.iadc.org/asp/documents/2009%20Final%20Summary%20Report.pdf](http://www.iadc.org/asp/documents/2009%20Final%20Summary%20Report.pdf)

### 8.2 International Association of Oil & Gas Producers (OGP) - 2009

In 2009 OGP members recorded an overall TRIR of 1.77. The overall LTIFR was 0.45. OGP members recorded 13 company and 86 contractor fatalities – an overall (onshore and offshore) fatal accident rate of 2.76. This information is based on 3586 million man-hours of work.

The offshore TRIR recorded by OGP members was 2.78; the offshore LTIFR was 0.80 and the offshore FAR 2.78, based upon 22 offshore fatalities, 530 LTIs and 2198 recordable injuries. This information is based upon 790 million man-hours of work.

Further detailed information on the OGP's 2009 statistics can be downloaded from [www.ogp.org.uk/pubs/439.pdf](http://www.ogp.org.uk/pubs/439.pdf)

Comparison of Overall Total Recordable Injury Frequency Rates (TRIR) between Trade Associations					
	2005	2006	2007	2008	2009
<b>IMCA</b>	5.41	4.14	4.38	2.50	2.54
<b>OGP</b>	3.05	2.92	2.68	2.08	1.75
<b>IADC</b>	11.71	10.85	10.24	9.11	6.12

Table 16 – Comparison of trade association TRIR

## 9 Leading Performance Indicators

### 9.1 Overall

This is the seventh year for which IMCA has collected leading performance indicator data. The table below shows how the Leading Performance Indicators have performed in recent years. This table has been recalculated to show results based on 200,000 man-hours.

	<b>SOFR</b>	<b>RAL</b>	<b>LLR</b>	<b>MVR</b>
<b>2003</b>	160.95	160.65	0.36	2.25
<b>2004</b>	160.44	113.80	0.66	4.27
<b>2005</b>	190.19	70.14	2.29	7.32
<b>2006</b>	159.49	51.11	1.70	3.46
<b>2007</b>	153.02	67.30	2.27	4.10
<b>2008</b>	216.63	28.92	1.77	6.31
<b>2009</b>	209.25	39.84	1.29	13.61

Table 18 – Leading performance indicators 2003-2009

	<b>SOFR</b>	<b>RAL</b>	<b>MVR</b>	<b>LLR</b>
<b>AP</b>	<b>118.65</b>	<b>22.72</b>	<b>4.29</b>	<b>1.82</b>
<b>EA</b>	<b>97.82</b>	<b>34.05</b>	<b>2.59</b>	<b>1.57</b>
<b>MEI</b>	<b>144.09</b>	<b>31.14</b>	<b>8.88</b>	<b>2.79</b>
<b>NA</b>	<b>695.67</b>	<b>47.41</b>	<b>79.43</b>	<b>0.67</b>
<b>ICO</b>	<b>230.78</b>	<b>35.45</b>	<b>7.03</b>	<b>0.25</b>

Table 19 – Leading safety indicators (overall) by region, 2009

### 9.2 Safety Observation Frequency Rate (SOFR)

Safety observations are defined as reports identifying at-risk behaviour, unsafe conditions or similar, e.g. STOP cards. Note that this is not the same as actual injury reporting.

There is very wide variation in reporting levels and in the safety observation frequency rate thus calculated, which varies over five orders of magnitude, from 0.08 to 4987. This suggests that there may be different interpretations of the definition of 'safety observation'.

It is a rate that should rise – whilst working to create an accident-free and injury-free workplace, there will always be room for improvement and subsequent reporting of that improvement. It is this positive and proactive reporting that needs to be encouraged.

Co	Safety observations	SOFR	Co	Safety observations	SOFR	Co	Safety observations	SOFR
1	30	323.00	52	30487	1027.54	103	56	42.89
2	1138	261.68	53	963	53.75	104	6	248.76
3	543	238.64	54	0	0.00	105	12	6.30
4	3717	224.93	55	0	0.00	106	1085	734.00
5	94	161.65	56	369	53.15	107	273	66.94
6	1563	36.60	57	162	9.99	108	4	0.27
7		0.00	58	11	9.20	109	0	0.00
8	2357	178.02	59	56	26.92	110	3	3.13
9	144	6.36	60	27525	606.77	111	14	13.14
10	357	32.66	61	668	79.53	112		0.00
11	7	32.38	62	17641	189.37	113	0	0.00
12		0.00	63	1444	57.74	114	6454	374.75
13	9659	47.26	64	0	0.00	115	6554	365.32
14	14345	4988.00	65	30	23.96	116		0.00
15	154	110.04	66	1662	144.47	117	4	16.97
16	10009	680.59	67	2086	351.14	118	11	3.66
17	6160	90.07	68	1641	108.42	119	1798	1099.09
18	611	495.01	69	9	9.81	120		0.00
19	22772	281.46	70	5	12.96	121	6126	115.34
20	51	25.62	71	43362	505.85	122	139	111.26
21	566	167.72	72	5	1.89	123	40	44.78
22	64	320.90	73	1170	286.94	124	140	12.10
23	143	192.61	74	1504	103.80	125	2362	1502.28
24	171	211.70	75	231	16.31	126	1667	192.76
25	1228	104.30	76	391	56.14	127	98	77.82
26	1674	352.91	77	765	27.73	128	65498	882.47
27	798	160.27	78	1164	146.52	129	195	1478.17
28	935	33.11	79	523	259.23	130	0	0.00
29	91	1.05	80	81	33.54	131	5	1.14
30	2	0.45	81	1	1.86	132	13326	459.90
31	5350	41.69	82	24	380.05	133	214	111.55
32	467	615.43	83	122600	1346.29	134	3	7.73
33		0.00	84	690	759.93	135	4200	271.54
34	2	85.91	85	25	1211.24	136	500	25.58
35	18846	1906.52	86	0	0.00	137	234	54.69
36	40	177.51	87	662	628.78	138	11144	374.85
37	3279	434.24	88	26	7.69	139	29	12.87
38	242	90.51	89	1215	105.28	140	18	13.46
39	4222	602.99	90	48	64.65	141		0.00
40	20	0.08	91	496	206.83	142	24	108.46
41	7498	253.40	92	243	29.52	143		0.00
42	357	30.39	93	30125	1409.62	144	183	71.96
43	1600	48.20	94	11964	200.43	145	9677	199.96
44	39	4.91	95	794	428.52	146	3312	60.33
45	841	115.81	96	12230	168.79	147	40352	182.30
46	7	6.85	97	757	91.71	148	226	0.95
47	274	363.62	98	385	57.66	149	20	8.03
48	2	1.48	99	12	5.69	150	102	10.60
49	322	34.19	100	21	54.33	151		0.00
50	0	0.00	101	647	159.12	152	21	13.69
51	7234	103.44	102	5450	873.99			
<b>IMCA</b>	<b>628524</b>	<b>209.25</b>	<b>IMCA</b>	<b>628524</b>	<b>209.25</b>	<b>IMCA</b>	<b>628524</b>	<b>209.25</b>

Table 19 – Safety observation frequency rate (SOFR) 2009

### 9.3 Reporting Activity Level (RAL)

The reporting activity level, designed as an indicator of how good a company's "reporting culture" is, is calculated as a rate. The number of hours over which it is normalised has changed in 2009 from 1,000,000 to 2,000,000 to maintain consistency with the other leading indicators. The definition of FNMR, MTR and RWIR can be found in Appendix 2.

$$\text{Reporting Activity Level (RAL)} = ((5 \times \text{FNMR}) + (20 \times \text{MTR}) + (100 \times \text{RWIR}))$$

In the past this has been calculated per **1,000,000** man-hours; from this year forward it will be calculated per 2,000,000 man-hours and the results from previous years recalculated.

Co	Med Trt	RWP	First Aid	Near Miss	RAL	Co	Med Trt	RWP	First Aid	Near Miss	RAL
1	0	0	0	0	0.00	77	1	2	11	1	10.15
2	5	1	0	5	51.74	78	0	2	20	39	62.31
3	1	0	0	1	10.99	79	0	1	1	2	57.00
4	0	1	15	7	12.71	80	0	0	7	2	18.64
5	0	0	1	0	8.60	81	0	0	0	1	9.28
6	1	0	0	1	0.59	82	0	0	0	0	0.00
7	40	49	137	0	75.17	83	16	6	152	72	22.40
8	15	4	51	28	82.70	84	1	0	1	2	38.55
9	4	0	6	3	5.52	85	0	0	0	3	726.74
10	5	0	18	39	35.23	86	4	6	3	106	80.33
11	0	0	0	0	0.00	87	0	0	0	3	14.25
12	1	1	3	7	73.48	88	2	0	59	17	124.20
13	37	17	370	184	25.49	89	3	0	42	48	44.19
14	0	0	14	4	31.29	90	0	0	0	0	0.00
15	0	0	6	14	71.45	91	1	1	1	7	66.72
16	10	3	19	9	43.52	92	0	2	28	151	133.00
17	3	0	6	22	2.92	93	5	4	101	14	50.30
18	0	1	17	0	149.88	94	41	0	439	75	56.79
19	21	10	166	2	27.93	95	1	0	0	3	18.89
20	1	0	1	3	20.09	96	19	19	144	16	42.51
21	1	3	3	5	106.68	97	3	0	1	19	19.38
22	0	0	1	0	25.07	98	8	1	16	18	64.40
23	1	1	2	3	195.30	99	0	1	0	5	59.29
24	0	0	5	0	30.95	100	0	0	1	1	25.87
25	5	6	19	0	67.52	101	0	0	123	5	157.40
26	4	1	20	1	60.08	102	0	1	0	5	20.05
27	4	0	7	17	40.17	103	0	0	2	2	15.32
28	7	15	72	345	131.91	104	0	0	0	2	414.59
29	1	0	27	0	1.79	105	2	0	0	1	23.63
30	9	2	6	2	94.54	106	0	2	6	0	155.59
31	7	4	46	35	7.36	107	2	0	4	0	14.71
32	1	0	11	1	105.43	108	4	0	9	13	12.94
33	0	0	1	2	7.34	109	0	0	0	0	0.00
34	0	0	0	0	0.00	110	3	2	1	0	276.04
35	2	2	2	16	33.38	111	0	0	29	0	136.06
36	0	2	3	3	1020.68	112	1	0	0	2	109.78
37	5	1	16	55	73.50	113	1	0	0	3	27.58
38	1	2	2	1	87.90	114	15	15	16	31	118.16
39	1	0	16	3	16.42	115	0	0	4	4	2.23
40	2	0	0	4	0.25	116	19	5	68	8	75.45
41	2	3	55	4	21.46	117	0	0	0	0	0.00
42	10	5	61	46	105.12	118	2	0	0	1	14.99
43	23	15	92	159	96.86	119	0	0	0	0	0.00
44	6	0	11	4	24.57	120	0	2	3	5	53.77
45	1	0	1	1	4.13	121	10	3	96	0	18.45
46	1	0	0	7	53.85	122	0	0	1	0	4.00
47	0	0	1	0	6.64	123	1	0	0	0	22.39
48	2	0	0	12	74.22	124	1	2	0	77	52.28
49	8	1	9	15	40.35	125	1	0	1	0	15.90
50	0	0	2	0	10.40	126	6	2	10	16	52.04
51	10	6	82	670	65.20	127	1	0	1	0	19.85
52	14	5	31	0	31.51	128	6	0	242	150	28.02
53	34	0	324	0	128.38	129	0	0	0	2	75.80
54	2	0	1	0	80.24	130	0	0	0	0	0.00
55	0	0	0	0	0.00	131	0	0	2	3	5.68
56	4	1	19	8	45.37	132	12	4	61	15	35.20
57	5	4	17	22	42.86	133	0	0	10	4	36.49
58	0	0	0	0	0.00	134	0	0	0	0	0.00
59	3	0	1	35	115.37	135	8	5	8	12	49.14



Co	Med trt	RWP	First Aid	Near Miss	RAL	Co	Med trt	RWP	First Aid	Near Miss	RAL
60	12	0	102	20	18.74	136	2	2	11	0	15.09
61	3	1	16	1	29.17	137	2	0	13	4	29.21
62	30	16	186	132	40.68	138	3	3	23	12	18.00
63	5	1	8	3	10.20	139	10	0	1	21	137.57
64	0	0	1	0	21.87	140	2	0	0	3	41.12
65	0	0	3	77	319.52	141	0	0	0	6	22.69
66	5	5	29	0	64.76	142	0	0	0	0	0.00
67	8	11	41	0	246.61	143	0	0	6	0	5.63
68	2	3	61	2	43.28	144	1	1	24	5	104.20
69	1	1	7	0	168.87	145	7	7	15	57	24.80
70	0	0	0	3	38.87	146	14	2	25	48	15.39
71	26	25	224	652	86.33	147	49	37	456	344	39.21
72	0	0	2	3	9.43	148	21	4	38	403	12.72
73	0	0	0	9	11.04	149	2	1	0	2	60.25
74	5	1	72	66	61.42	150	7	2	17	54	72.23
75	0	0	6	81	30.72	151	1	0	9	18	17.05
76	1	2	1	45	64.62	152	8	3	2	6	326.02
<b>IMCA</b>	<b>117</b>	<b>815</b>	<b>1390</b>	<b>5776</b>	<b>39.84</b>	<b>IMCA</b>	<b>117</b>	<b>815</b>	<b>1390</b>	<b>5776</b>	<b>39.84</b>

Table 20 – Reporting activity level (RAL) 2009

## 9.4 Management Visit Ratio (MVR)

**Management visit ratio (MVR)** = No. of managerial visits per 100,000 man-hours

In the past this has been calculated per **100,000** man-hours; from this year forward it will be calculated per 200,000 man-hours and the results from previous years recalculated.

Management			Management			Management		
Co	Visits	MVR	Co	Visits	MVR	Co	Visits	MVR
1	30	323.00	52	113	3.81	103	14	10.72
2	11	2.53	53		0.00	104	2	82.92
3	80	35.16	54	8	14.26	105	12	6.30
4	59	3.57	55	0	0.00	106	50	33.82
5	11	18.92	56	5	0.72	107	36	8.83
6	3	0.07	57	24	1.48	108	8	0.54
7		0.00	58	5	4.18	109	12	22.25
8	74	5.59	59	15	7.21	110	3	3.13
9	8	0.35	60	94	2.07	111	17	15.95
10	75	6.86	61	114	13.57	112		0.00
11	0	0.00	62	527	5.66	113	22	17.34
12	15	6.48	63	75	3.00	114	729	42.33
13	2331	11.40	64	14	61.25	115	32	1.78
14	2	0.70	65	250	199.70	116		0.00
15	10	7.15	66	100	8.69	117	0	0.00
16	9	0.61	67	865	145.61	118		0.00
17	205	3.00	68	24	1.59	119	362	221.28
18	114	92.36	69	49	53.38	120		0.00
19	529	6.54	70	5	12.96	121	265	4.99
20	2	1.00	71	130	1.52	122	0	0.00
21	26	7.70	72	12	4.53	123	24	26.87
22	6	30.08	73	100	24.52	124	22	1.90
23	6	8.08	74	37	2.55	125	76	48.34
24	28	34.66	75	28	1.98	126	15	1.73
25	27	2.29	76	151	21.68	127		0.00
26	4	0.84	77	25	0.91	128	220	2.96
27	11	2.21	78	2	0.25	129	12	90.96
28	6	0.21	79	2	0.99	130	4	67.80
29	141	1.63	80	12	4.97	131	24	5.46
30	1	0.23	81	13	24.12	132	167	5.76
31	20	0.16	82	10	158.35	133	12	6.26
32	15	19.77	83	26420	290.12	134	3	7.73
33	10	4.89	84	7	7.71	135		0.00
34	4	171.82	85	4	193.80	136		0.00
35	429	43.40	86	0	0.00	137	25	5.84
36	6	26.63	87	27	25.64	138	70	2.35
37	14	1.85	88	0	0.00	139	12	5.33
38	24	8.98	89	8	0.69	140	16	11.96
39	108	15.42	90	1	1.35	141		0.00
40	14	0.06	91	13	5.42	142	5	22.60
41	54	1.82	92	52	6.32	143	65	12.19
42	28	2.38	93	354	16.56	144	67	26.34
43		0.00	94	1118	18.73	145	101	2.09
44	6	0.76	95	88	47.49	146	180	3.28
45	119	16.39	96	360	4.97	147	1291	5.83
46		0.00	97	109	13.21	148	120	0.50
47	12	15.92	98	6	0.90	149	10	4.02
48	2	1.48	99	56	26.56	150	5	0.52
49	8	0.85	100	8	20.70	151		0.00
50	2	2.08	101	44	10.82	152	57	37.17
51	192	2.75	102	345	55.33			
<b>IMCA</b>	<b>40887</b>	<b>13.61</b>	<b>IMCA</b>	<b>40887</b>	<b>13.61</b>	<b>IMCA</b>	<b>40887</b>	<b>13.61</b>

Table 21 – Management visit ratio (MVR) data 2009

## 9.5 Lessons Learnt Ratio (LLR)

**Lessons learnt ratio (LLR)** = Number of bulletins issued per 100,000 man-hours

In the past this has been calculated per **100,000** man-hours; from this year forward it will be calculated per 200,000 man-hours and the results from previous years recalculated.

Co	Safety Bulletins	LLR	Co	Safety Bulletins	LLR	Co	Safety Bulletins	LLR
1	19	204.57	52	8	0.27	103	18	13.79
2	5	1.15	53	5	0.28	104	2	82.92
3		0.00	54	7	12.48	105	12	6.30
4	10	0.61	55	0	0.00	106	101	68.33
5	3	5.16	56	3	0.43	107	40	9.81
6	13	0.30	57	0	0.00	108	29	1.97
7		0.00	58	6	5.02	109	12	22.25
8	12	0.91	59	12	5.77	110	4	4.17
9	121	5.35	60	58	1.28	111	4	3.75
10	16	1.46	61	27	3.21	112		0.00
11	10	46.26	62	62	0.67	113	0	0.00
12	12	5.19	63	41	1.64	114	26	1.51
13		0.00	64	0	0.00	115	12	0.67
14	1	0.35	65	46	36.75	116		0.00
15	7	5.00	66	5	0.43	117	4	16.97
16		0.00	67	18	3.03	118		0.00
17	20	0.29	68	43	2.84	119	26	15.89
18	73	59.14	69	19	20.70	120		0.00
19	32	0.40	70	0	0.00	121	11	0.21
20	0	0.00	71	88	1.03	122	0	0.00
21	22	6.52	72	3	1.13	123	12	13.44
22	18	90.25	73	73	17.90	124	39	3.37
23	0	0.00	74	26	1.79	125	14	8.90
24	0	0.00	75	19	1.34	126	90	10.41
25	27	2.29	76	9	1.29	127	52	41.29
26	12	2.53	77	18	0.65	128	15	0.20
27	0	0.00	78	5	0.63	129	4	30.32
28	23	0.81	79	11	5.45	130	0	0.00
29	38	0.44	80	0	0.00	131	8	1.82
30	2	0.45	81	11	20.41	132	4	0.14
31	6	0.05	82	0	0.00	133	8	4.17
32	98	129.15	83	19	0.21	134	0	0.00
33	9	4.41	84	42	46.26	135	30	1.94
34	5	214.78	85	2	96.90	136		0.00
35	26	2.63	86	0	0.00	137	27	6.31
36	66	292.89	87	2	1.90	138	140	4.71
37	213	28.21	88	1	0.30	139	2	0.89
38	33	12.34	89	10	0.87	140	6	4.49
39	72	10.28	90	14	18.86	141		0.00
40	5	0.02	91	21	8.76	142	10	45.19
41	19	0.64	92	28	3.40	143	20	3.75
42	16	1.36	93	33	1.54	144	72	28.31
43		0.00	94	25	0.42	145	14	0.29
44	35	4.41	95	0	0.00	146	2	0.04
45	20	2.75	96	14	0.19	147		0.00
46	18	17.62	97	12	1.45	148	34	0.14
47	34	45.12	98	5	0.75	149	4	1.61
48	6	4.45	99	14	6.64	150	79	8.21
49	29	3.08	100	47	121.60	151		0.00
50	0	0.00	101	158	38.86	152	411	267.99
51	150	2.14	102	52	8.34			
<b>IMCA</b>	<b>3876</b>	<b>1.29</b>	<b>IMCA</b>	<b>3876</b>	<b>1.29</b>	<b>IMCA</b>	<b>3876</b>	<b>1.29</b>

Table 22 – Lessons learnt ratio (LLR) data 2009

## Definitions – Lagging Safety Statistics

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

<b>Hours worked</b>	for offshore operations – the ‘actual hours worked’ based on a 12-hour day for onshore operations – the actual hours worked, including overtime hours
<b>Number of fatalities</b>	the total number of employees and others who died as a result of an accident
<b>Fatal accident rate (FAR)</b>	number of fatalities per 100,000,000 hours worked
<b>Number of lost time injuries (LTIs)</b>	comprises all accidental injuries (including fatalities and lost work day cases but excluding restricted work day cases) where: <ul style="list-style-type: none"> <li>◆ 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</li> <li>◆ 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: <ul style="list-style-type: none"> <li>– an assignment to a temporary job;</li> <li>– working in the regular job but not performing all the usual duties of the job.</li> </ul> </li> </ul> <p>Note: Where no meaningful restricted work is being performed, the incident should be recorded as a lost work day case.</p>
<b>Lost time injury frequency rate (LTIFR)</b>	analysed separately as offshore, onshore and overall statistics $\frac{\text{Lost time injuries} \times 1,000,000}{\text{hours worked}}$
<b>Total recordable injury rate (TRIR)</b>	the number of injuries and/or illnesses per 100 full-time workers and is calculated as: $= \frac{\text{total number of recordable injury} \times 1,000,000}{\text{total hours worked}}$
<b>The US Occupational Safety &amp; Health Administration (OSHA) definition of ‘total recordable injuries’</b>	<i>Work-related injuries and illnesses</i> – events or exposures in the work environment that caused or contributed to the condition or significantly aggravated a pre-existing condition. <i>Recordable cases</i> – include work-related injuries and illnesses that result in: <ul style="list-style-type: none"> <li>◆ Death;</li> <li>◆ Loss of consciousness;</li> <li>◆ Days away from work;</li> <li>◆ Restricted work activity or job transfer;</li> <li>◆ Medical treatment (beyond first aid);</li> <li>◆ Significant work related injuries or illnesses that are diagnosed by a physician or other licensed health care professional. These include any work related case involving cancer, chronic irreversible disease, a fracture or cracked bone, or a punctured eardrum;</li> <li>◆ Additional criteria that can result in a recordable case include: <ul style="list-style-type: none"> <li>– Any needlestick injury or cut from a sharp object that is contaminated with another person’s blood or other potentially infectious material;</li> <li>– Any case requiring an employee to be medically removed under the requirements of an OSHA health standard;</li> <li>– Tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis.</li> </ul> </li> <li>◆ Days away from work, days of restricted work activity or job transfer;</li> <li>◆ Days away from work, days of restricted work activity or job transfer are cases that involve days away from work, or days of restricted work activity or job transfer, or both;</li> <li>◆ Cases involving days away from work are cases requiring at least one day away from work with or without days of job transfer or restriction;</li> <li>◆ Job transfer or restriction cases occur when, as a result of a work-related injury or illness, an employer or health care professional keeps, or recommends keeping an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.</li> </ul>
	<i>Total recordable injury rate (TRIR)</i> – the number of injuries and/or illnesses per 100 full-time workers, calculated as (N/EH) x 200,000 where: N = total number of recordable injuries and/or illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 full-time equivalent workers (working 40 hours a week, 50 weeks a year)
	Note: The primary difference between the IMCA TRIR and that of OSHA is that IMCA follows the practice of referencing recordable injuries against one million man-hours rather than 200,000 man-hours.

## Definitions – Leading Safety Statistics

Members of the SEL Committee have suggested a review of the definition of these Leading Performance Indicators. During 2005 this work has progressed, leading to an initial conclusion that Lagging Indicators such as LTIFR should not be used in the formulae for calculating the Leading Performance Indicators.

Therefore, for the Reporting Activity Level (RAL), Management Visits Ratio (MVR) and Lessons Learnt Ratio (LLR), the results have been calculated using a simpler definition. For completeness the old definitions are included here as well.

### Safety Observations Frequency Rating (SOFR)

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 (see the accompanying graph).

The measure used by IMCA is 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 man-hours are defined in information note IMCA SEL 38/02.

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

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

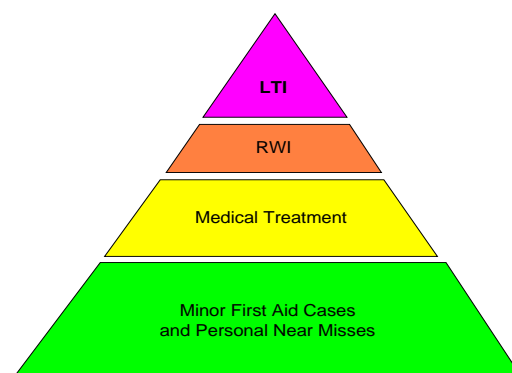
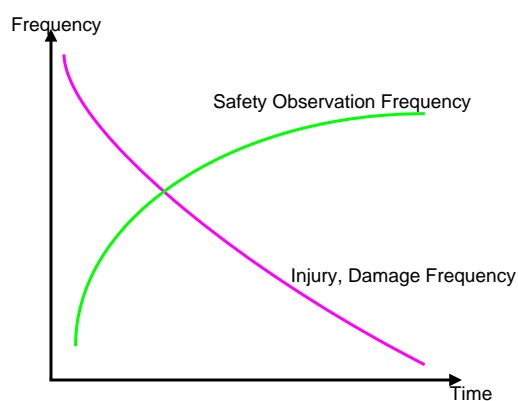
#### Definitions

SOFR	Safety observation frequency rating
Safety observation	Report identifying at-risk behaviour, or an unsafe condition to prevent loss or harm e.g. STOP card
Observational work man-hours	for onshore operations – ‘actual’ hours worked, including overtime hours for offshore operations – the hours worked, based on a 12-hour exposure day

### Injury Events Reporting Level

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. In addition we need to 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 injuries 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:

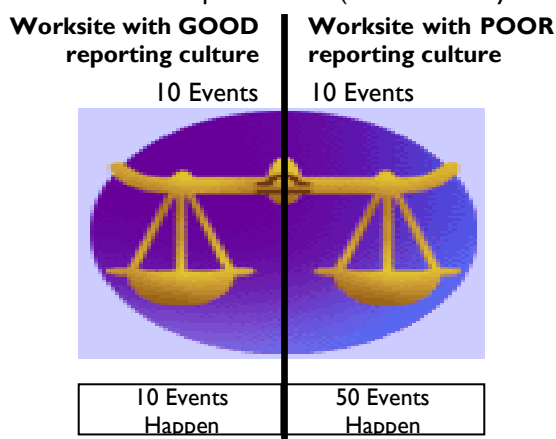
$$RAL = ((5 \times FNMR) + (20 \times MTR) + (100 \times RWIR)) \text{ per } 200,000 \text{ man-hours}$$

The number of hours over which the RAL is referenced is 200,000. The definition of FNMR, MTR and RWIR remain unchanged.

**Definitions**

RAL	Reporting activity level.	
FNMR	Number of first aid injuries and personal near-miss reports.	
MTR	Number of medical treatment reports.	
RWIR	Number of restricted work injury reports.	
First aid injury	A one time treatment for the purpose of dealing with minor scratches, cuts, burns, splinters etc which do not ordinarily require medical care.	
Medical treatment injury	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.	
Restricted work injury	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	
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



**Line Management Visits Rating (MVR)**

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 peoples' 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:

$$MVR = \text{No. of managerial visits per } 200,000 \text{ man-hours per } (1 + \text{No. of lost time injuries})$$

$$= \frac{MV \times 100,000}{(1 + LTI) \times \text{Man-hours}}$$

**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).

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.

**Lessons Learnt Rating (LLR)**

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:

$$LLR = \frac{\text{Number of bulletins issued}}{(I + \text{Number of LTIs})}$$

As with the reporting activity level (RAL) and the management visit rating (MVR), a new formula has been employed without the LTI clause:

$$NEW LLR = \text{Number of bulletins issued per 200,000 man-hours}$$

Definitions

LLR                                         Lessons learnt rating.