

# WASA REPORT

## IRATA Work and Safety Analysis 2014



*“There were 34 injuries, including only six reportable over 7 day injuries, and no major injuries. The reportable injury rate was 64 per 100,000 workers.”*





# Abstract

Employment and accident/ incident data for 2014 was supplied by up to 315 IRATA member companies operating from eleven zones located worldwide. Total reported workforce fell to slightly less than 12,400; this was a net change as some zones reported increases whilst others reported decreases. Working hours increased to 16.8 million hours with 0.72 million hours on training/assessment. Increased utilisation of workers may account in part for the increased work hours with no significant change in overall workforce numbers.

There were 34 injuries, including only six reportable over 7 day injuries, and no major injuries. The reportable injury rate was 64 per 100,000 workers; this was only a small fraction of latest UK, Eurostat EU28 and USA work injury statistics, maintaining a remarkable safety record. Injury rates, including all none reportable injuries, fell to within the range 2-4 per 1,000 workers for each of the qualified rope access technician categories.

The major causes of accidents and dangerous occurrences were falling objects, being caught by tools and equipment failures. A number of areas were identified where improvements in safer working could be achieved. These included pre-use checking of work tools and their operation, greater care in use of rope access equipment and maintaining protective site vigilance particularly in respect of 3rd party personnel.

The 2014 health and safety statistics improved still further and continue to be a credit to members of the Association.

**Dr. C H Robbins**  
**July 2015**

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*“It is important to note that the numbers of employees reported relate to member companies. Actual IRATA qualified individuals, who are not employees of members, will greatly exceed the numbers covered by this report.”*



# Introduction

IRATA, following its formation in 1989 with nine companies, comprised 315 member companies worldwide by year end 2014. All members were obliged to submit information on employment and particulars of any accidents or incidents they incurred. This report, celebrating the 25th year of annual reports, presents summaries of the data provided Jan-Dec 2014. It also attempts to analyse the data submitted, present comparisons of accident rates against international figures as well as highlighting areas for improvements in safety, based on the data submitted.

The complexity of submissions required inevitably led to errors and omissions in the data supplied. Therefore, all data submitted was subject to 100% quality checks prior to commencement of analysis and, where necessary and possible, corrections or amendments were made to ensure the validity of subsequent analysis. Recent changes to help clarify and simplify the reporting format for both incident and employment data did not improve the accuracy of submissions. However, a completely revised and much simplified system will be in operation for 2015. This should reduce the burden of submitting data and improve accuracy with only marginal loss of content.

It is important to note that the numbers of employees reported relate to member companies. Actual IRATA qualified individuals, who are not employees of members, will greatly exceed the numbers covered by this report.

The 'days off work' criterion for injuries and accidents, revised upward to over 7 days, is now established and a **Serious** injury or accident is now defined as one that necessitates **more than 7 days absence from work** (see later for further definitions). Accident data is now largely consistent with UK and, eventually, European statistics (Eurostat).

Throughout the report, reference is made to the following categories of work location that have the distinctions noted below:

**'On Rope'** – Arranging, using and directly involved in rope access work. It also includes access and egress activities to rope access work sites and setting up belays and rigging. Thus, this does not necessarily require a person to be 'roped up' or physically connected to active ropes.

**'Off Rope'** – includes all site work including at height but not involving rope access, such as on scaffolds, roof work and provision of 'remote' support to rope access teams (e.g. communications, site surveys etc).

**'Other'** – typically includes all work off-site, in offices, etc. This would include, for example, equipment inspection prior to removal to work site. 'Other' now also includes 'On Ground' or secure areas for working hour reporting; in effect, all hours not accounted for by the above categories including non-rope access training.

**'Training'** – all activities undertaken at rope access training facilities and establishments. For the avoidance of doubt, this will include all personnel, trainers, training staff and trainees, solely for rope access training. All other training, induction courses, trial work, specialist courses (e.g. use of BA, First Aid) are excluded and reported under a different category (usually 'Other').

Additionally, for the purpose of this report, the distinction is made between:

**'Accident'** – an unintended event where actual personal harm, injury or fatality occurred at work and

**'Incident' or 'dangerous occurrence'** – an event or situation where no personal harm or injury occurred but which could have led to injury or fatality.

The report is arranged with figures, graphs and tables incorporated within the text to which they apply. Tables, summarising data, are included in Appendices. The report first considers overall employment, examines the employment data for each region (RAC) and, finally, the overall accident and incident data analysed and compared to available international statistics.

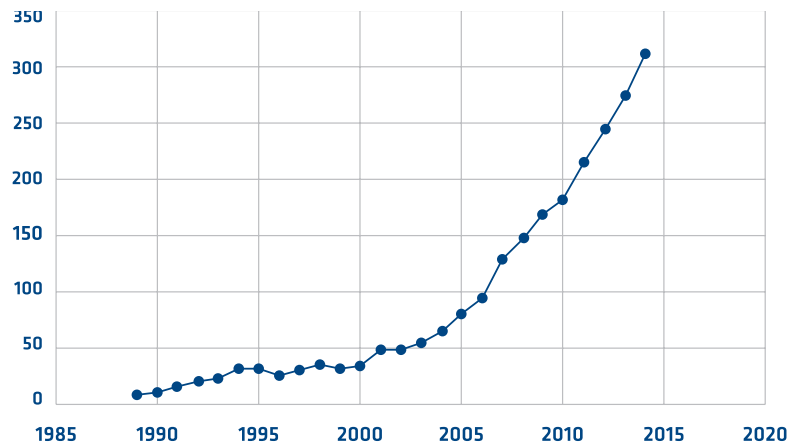
It is emphasised that in order to calculate accident rates it is essential to have details of employment levels as well as accidents and incidents. Thus, gratitude is due to those saddled with the onerous task of assembling and submitting required data on behalf of members. Since 2013, members reported under nominated Regional Advisory Committees (RACs) set up to cover geographic areas or zones. These numbered eleven in 2014.

# 2. Irata Membership

The number of members rose during 2014 from 283 in Q1 to 315 by Q4 (excepting those leaving or suspended).

The continuing increase in membership since 1989 is shown in Fig.1. The nearly linear increase in membership of the Association over the last 11 years was maintained with a further increase of 38 new members worldwide, an increase of 12%.

Fig. 1 Member Companies



# 3. Employment Statistics

## 3.1 Employment Levels

Average employment of Managers and qualified rope access workers was **10,186**, only a 2% rise in the 9,961 figure for 2013, excluding 'Others'. Fig 2 clearly shows the marginal increase actually occurred only for managers, the remainder falling very slightly in numbers for all other grades. If 'Others' is included, the total rises to **11,856**, remaining below the overall total of 12,039 achieved in 2013. Taking training hours of 0.72 million and the overall utilisation figure of 1,402 into account (see 3.4 later), the effective employment level increases to **11,856 + 513 = 12,369**.

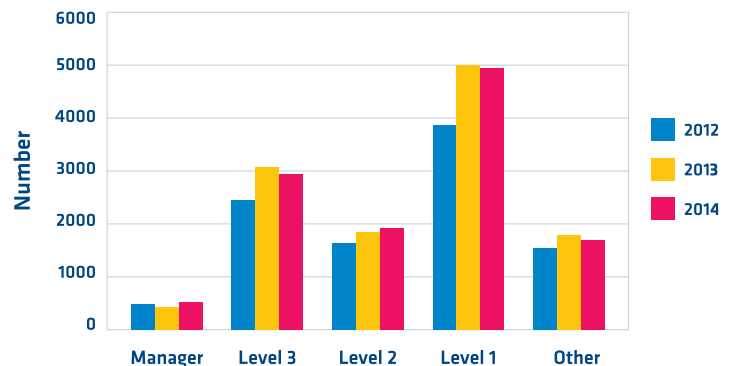
These figures require explanation particularly, as will be seen, recorded work hours actually increased by 4.2% whilst member companies increased by 12%. Several coincident factors may contribute to the virtually static workforce numbers:

- (a) Members were asked to minimise the possibility of 'double' counting by reporting only those directly employed, leaving it to sub-contractors etc to report their own workforce unless agreed otherwise.
- (b) Reducing the extent of double counting may indicate that previous year data may actually have been inflated and this may partly explain why utilisation figures have been low.
- (c) With relatively low historical utilisations, it may be that companies have been able to absorb more work with a largely existing workforce. In other words, qualified technicians may have been more fully employed on 'rope work'.

Utilisation would be total work hours divided by employees which gives 1,402 for 2014. This is still well below the figure of 2,000 hrs per annum usually accepted as full employment.

- (d) Examination of data reveals that many of the 'newer' members had low numbers and only joined in the latter stages of the year and naturally contributed relatively little.
- (e) The consistency of the numbers between 2013 and 2014 for all grades suggests the effect is not primarily due to anomalous reporting. However, there is some evidence of under-reporting by some companies, for example Q2 within the UK RAC (see 3.4.10) and elsewhere.

Fig. 2 Employment by Grade



It should be noted that a stringent view was taken with clearly 'over-zealous' reporting of 'Other' category workers as submitted by some companies. In some cases the numbers supplied probably represented entire workforces rather than only that actually supporting rope access.

YEAR	UTILISATION (Hrs per annum)
2010	1,260
2011	1,130
2012	973
2013	1,324
2014	1,402

## 3.2 Summary of Hours Worked

The total hours worked was **16,806,187**, ~5.3% greater than the 2013 figure of 15,944,873. Including training/assessment hours (see 3.3), the total rose to **17,525,991**.

Fig. 3 Distribution of Work Hours

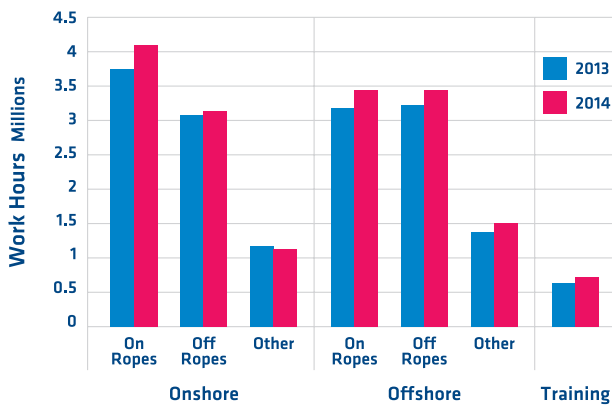
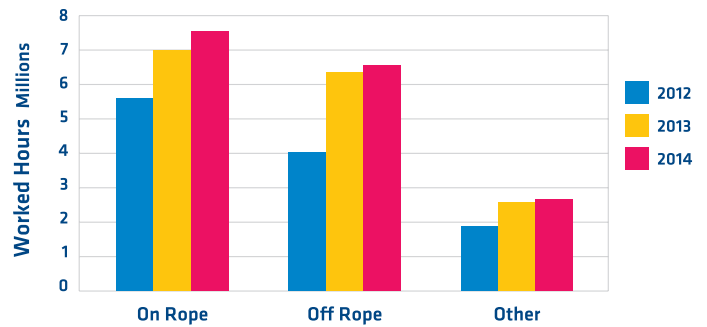


Fig 3 compares the distribution of work hours between onshore and offshore. Total hours remained almost identical for Onshore and Offshore (~8.4 million apiece), as in 2013. Training and Assessment accounted for 0.72 million hours, about 4.2% of the total hours, also as in 2013. Profiles are similar although 'Onshore' shows a slightly higher proportion of 'On Rope' working. Noticeably, offshore on rope working is significantly less than onshore, possibly a reflection of more stringent control or competing activities limiting time on rope.

Fig. 4 Deployment of Worked Hours



Turning to how the working hours were distributed, Fig. 4 shows the distribution between 'On Rope' and 'Off Rope' and includes the data for 2012/13. 'On Rope' working still accounts overall for the largest proportion of time. This reinforces the view that an increase in utilisation of existing workforce may partly account for the stasis in manpower of the working grades particularly as the largest increase was also in 'On Rope' working. **This accounted for 7.59 million hours of work whilst 'Off Rope' working accounted for 6.60 million hours, only marginally greater than in 2013.**

The lack of any increase in 'Other' category working hours suggests many submissions over-stated the number of unqualified support staff and, therefore, justified a more stringent approach when checking the manpower numbers previously discussed. 'Training' hours are omitted from the above chart and are dealt with next.

## 3.3 Training

The Association places great emphasis on training. The total of hours reported reached 719,804. This would equate to  $719,804 / 1,402 = 513$  full time individuals in arithmetic terms. It is emphasised that this does not imply that only 513 were in training; it merely represents the effective number of personnel in full time employment that would correspond to the summed training hours.

It is not possible to distinguish between trainers (i.e. full time in 'training') and trainees (say 40 hours per annum). But, overall, the figures represent about 4.2% of work hours specifically dedicated to rope access training and assessment. These figures confirm and reflect the emphasis IRATA places on the importance of training.



### 3.4 Regional Advisory Committees (RACs)

In 2013, it was decided that nine zones or regions around the world be formed, each overseen by Regional Advisory Committees (RACs). This was increased in 2014 to 11. Members were to submit their data according to the zone or region in which they operated. The eleven RACs identified for 2014 were as follows:

- Australia
- Benelux
- Brazil
- D-A-CH (Germany, Austria and Switzerland)
- Middle East
- North America
- North Sea Operators
- South Africa
- South East Asia
- UK
- Other

Other (diverse, includes W Africa, Nordic and several European countries, China, Japan etc). It is now necessary to consider the returns from each of these RACs. Their respective data are presented in chart form, covering employment numbers against grade and distribution of work hours by location (Onshore/Offshore and On Rope/ Off Rope/Other).

Training numbers are excluded from charts but are briefly summarised. The 'calculated' training number is given based upon the RAC's own training hours and utilisation figure. It indicates the effective number of personnel as though they were in full time training. It is an attempt to minimise 'double counting' where technicians may be counted within employed numbers and again as trainees.

### 3.4.1 Australia

Twenty three to twenty six companies submitted returns for work in Australia with perhaps 7 or 8 providing the larger workforces. The dominance of onshore work may be noted but appears to fluctuate quarter by quarter for on rope working, as in 2013. The almost one for one relationship between L1 and L3 is again noteworthy.

Total work hours was 647,492 (566,253 in 2013), total average workforce was 585 (454 in 2013), excluding training, giving an utilisation of 1,107, somewhat less than 1,259 hours per person in 2013. Training hours totalled of 36,698 (29,681 in 2013), 5.7% of work hours and equivalent to 33 full time personnel.

Fig. 5 Australia - Employment

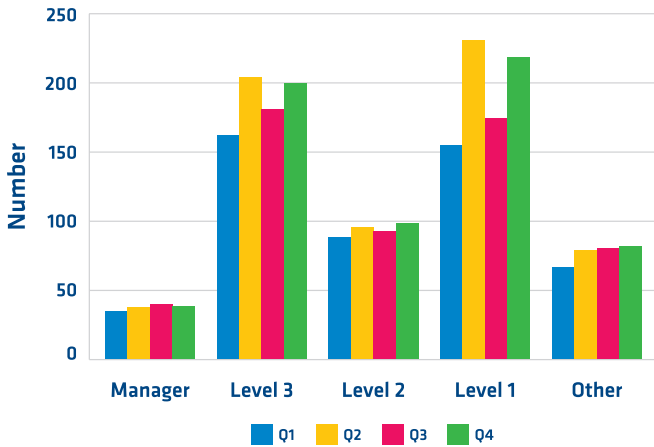
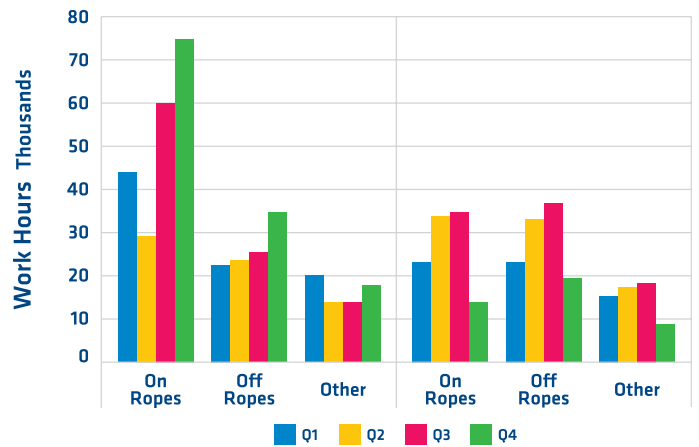


Fig. 6 Australia - Work Hours



### 3.4.2 Benelux

An average of 13 companies contributed to the Benelux data, fewer than in 2013. This was accompanied by a significant decline in all working grades. Although there was a general increase in all onshore work categories, this was more than offset by a decline in all offshore work with a net reduction from 402,132 in 2013 to 366,995 in 2014.

The average workforce likewise declined from 466 to 325 but utilisation increased from 864 to 1,129 hrs per worker. Training hours also declined, from 13,397 to 12,746, equivalent to 12,746/1,129 = ~11 full time personnel. The Benelux data reflects the general trends overall.

Fig. 7 Benelux - Employment

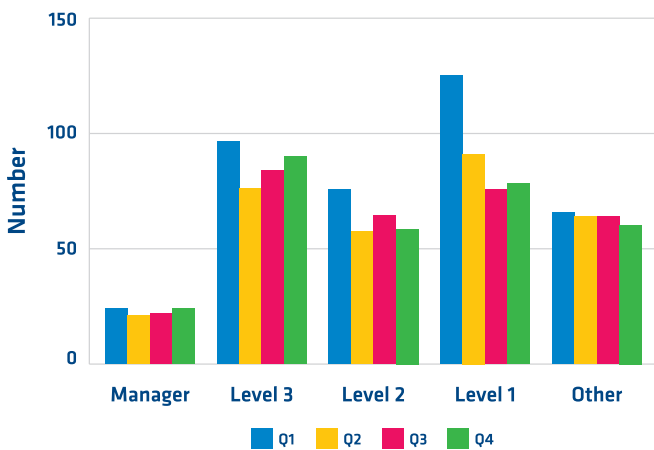
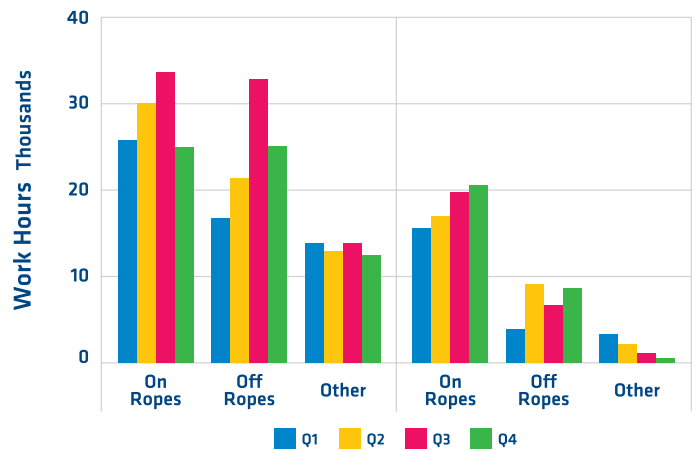


Fig. 8 Benelux - Work Hours





### 3.4.3 Brazil

Reports were received from as few as 15 in Q1 to 25 in Q2 and the major contributors, in both employment and work hours, also varied quarter by quarter. The decline in work hours was most extreme in onshore on and off rope working but strangely retained significant 'Other' working hours. This anomalous reporting appears due to only 2-3 members' reports or lack of. As in 2013, a noticeable feature is the high numbers of Level 1 and 'Other' relative to other grades. The sudden upsurge in L1 for Q4 appears related to on rope work offshore with a small decline in L2s, some of whom presumably moved up to L3. The high ratio of presumably inexperienced L1s to almost static L2/3s may be noted.

Total work hours fell from 1,214,432 to only 806,085, a 34% drop with a commensurate fall in employment from 1,203 to 752, a drop of 36%. Utilisation rose slightly from 1,010 to 1,072 hrs/person. Training hours also fell; from 92,813 to 60,799, again a 34% drop, consistent with employment and work hours but inconsistent with the rapid Q4 rise in L1 numbers. This gives an equivalent of 57 in full time training. It appears that the figures above are consistent with each other and, largely, are due to the performance of only 2-3 members within the RAC

Fig. 9 Brazil - Employment

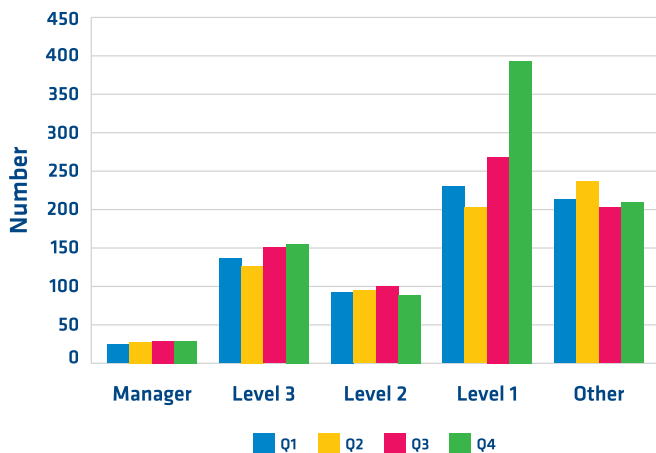
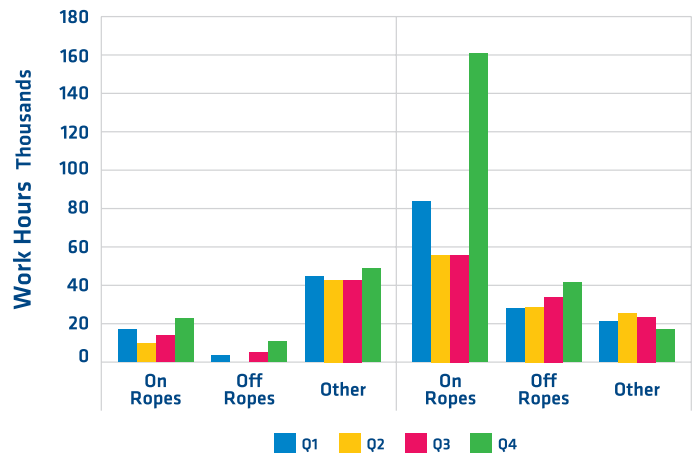


Fig. 10 Brazil - Work Hours



### 3.4.4 D-A-CH (Germany, Austria and Switzerland)

A new RAC addition, consists of only 5-6 members with a combined work hours of 27,432, virtually entirely undertaken onshore. Unsurprisingly, with such a small population, the erratic Q by Q employment figures nevertheless show a reasonable ratio between grades.

With an average population of 41 the utilisation was 669 hrs/person. Training accounted for 9,434 hrs, equivalent to 14 full time employees, a remarkably high percentage of work hours (34%).

Fig. 11 D-A-CH - Employment

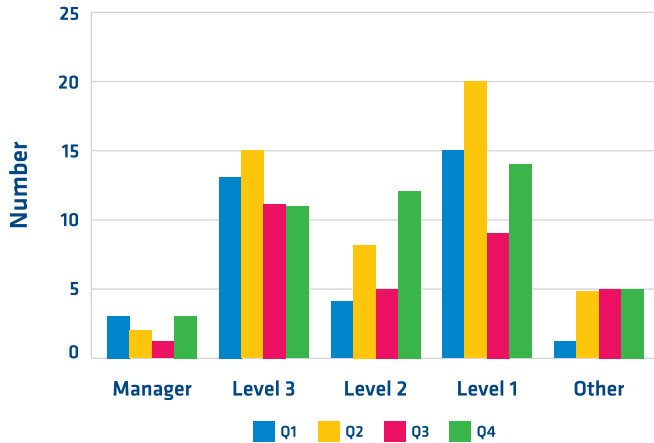
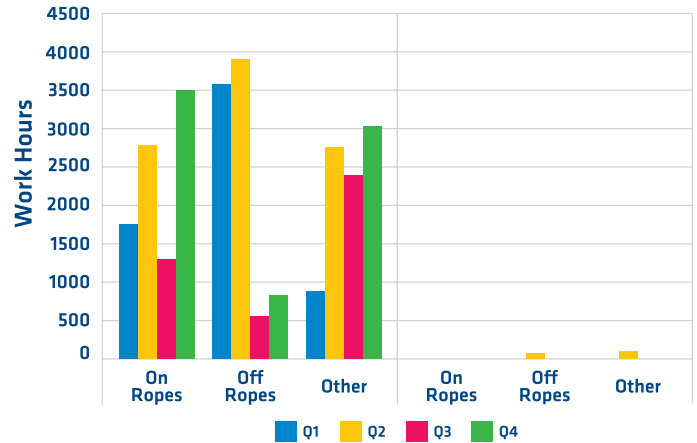


Fig. 12 D-A-CH - Work Hours



### 3.4.5 Middle East

Both profiles for employment and work hours between 2013 and 2014 were essentially the same. Despite the increase in members from Q1 of 14 to 19 in Q4 there was no commensurate increase in employed numbers. The notably higher number of Level 1s relative to other grades was repeated in 2014. Similarly, five or six members dominated the data with a single company being outstanding in its contributions. Also of note is that Onshore working far outstripped Offshore, reflecting the majority of Middle East work.

Work hours totalled 2,384,495, some 21% greater than 1,975,511 in 2013, bucking the general trend. Employees totalled 1,356, about 12.5% higher than the figure of 1,206 of 2013. This gave a utilisation of 1,758 hrs/worker, significantly higher than average and approaching a full utilisation. Training hours fell from 66,652 to 50,316, marginally over 2% of work hours and significantly below average; perhaps a point of note particularly in view of the somewhat distorted profile of qualified technicians and only one L3 for every 4 or 5 L1s and 2s. Training equivalent was 29 full time workers.

Fig. 13 Middle East - Employment

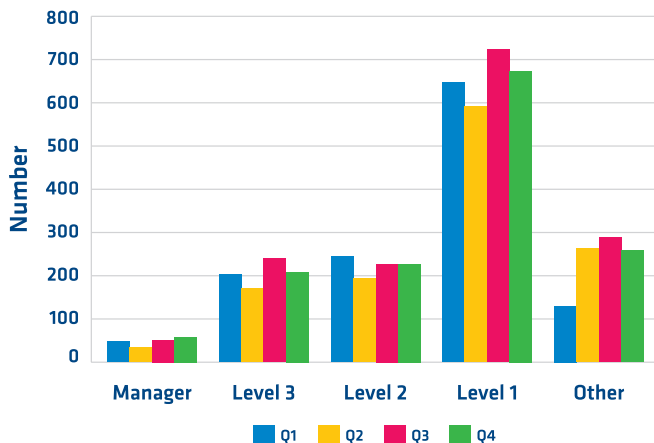
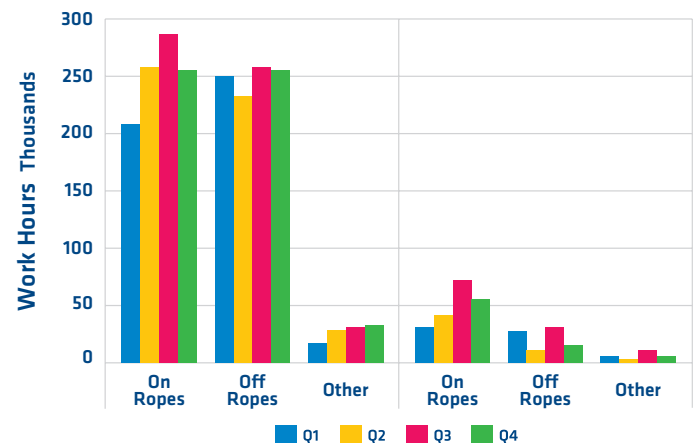


Fig. 14 Middle East - Work Hours

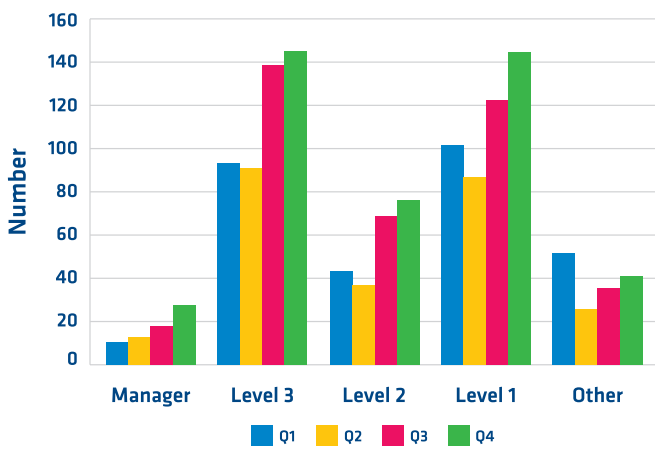


### 3.4.6 North America

Member companies increased from the 9-13 range in 2013 to 11 rising to 17 by Q4 in 2014. However, as in 2013, one member was responsible for the majority of employment and work hours. The rise in employment profiles, Q by Q, for all qualified grades is remarkably similar to that in 2013. Onshore working again far outstripped Offshore work although the latter increased its share of the total from 11% in 2013 to 18% in 2014. The almost 1:1 ratio of L3 to L1 was noteworthy.

In common with the general trend, employment numbers fell from a quarterly average of 500 to only 340 (32%) although the fall was marginal for L2s.

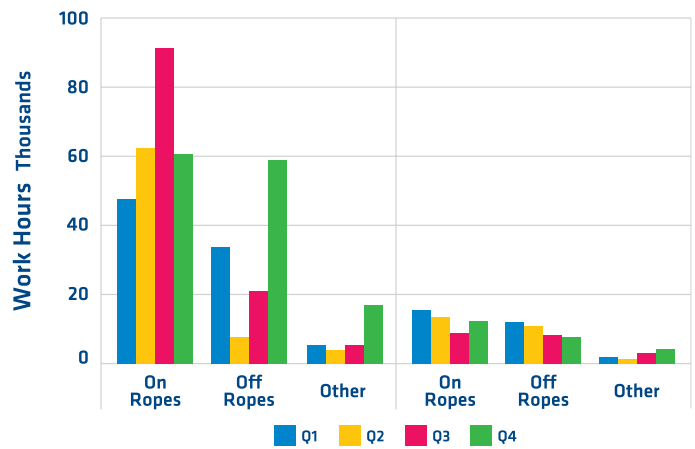
Fig. 15 North America - Employment



Overall work hours also fell, from 585,474 in 2013 to 501,809 in 2014 (14%). Utilisation increased significantly, rising from 1,170 to 1,476, in line with the suggestion that consolidation of employment and absorption of excess capacity may be partly responsible for an almost static employment level.

Training hours reported rose by 29% to 64,601, representing 7.8% of work hours and nearly double the average. This represents 44 in full time training.

Fig. 16 North America - Work Hours



### 3.4.7 North Sea Operators

These figures cannot be compared to the previously termed N Sea RAC as membership is significantly different. Not least, member numbers were in the range 18-24 in the revised RAC whereas previously it rose from 43 to a peak of 56.

As expected, the major working arena was 'Offshore' although the preponderance of 'Off rope' may be surprising but explained by the usual offshore working practices and constraints. The very modest level of managers may also be explained by the tendency for offshore teams to come under local platform management.

The average employed workforce was 1,983 with associated work hours totalling 3,583,351. Thus, utilisation was 1,807 hrs/worker, almost achieving full employment (but bearing in mind 12 hour shift patterns). Training hours were severely limited reaching only 12,462 which is less than 0.35% of work hours and only 7 full time equivalent workers. It must be assumed that N Sea Operators 'import' the majority of qualified rope access technicians required and utilising UK training facilities (see 3.4.10).

Fig. 17 North Sea Operators - Employment

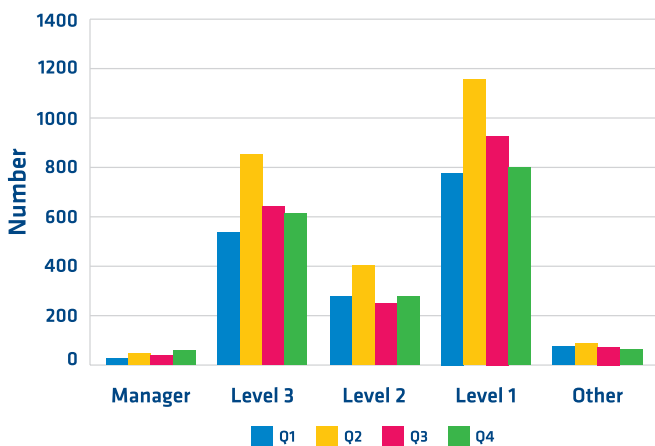
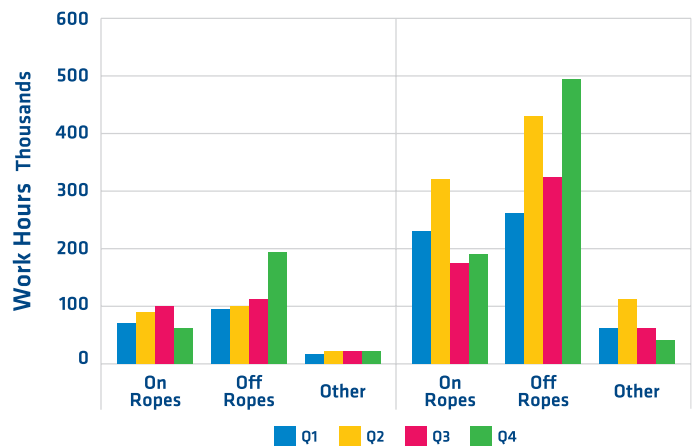


Fig. 18 North Sea Operators - Work Hours



### 3.4.8 South Africa

Between eight and ten members reported data with two members predominating; however, several others also contributed substantially. Offshore working remained the major area of employment interest with a balance between all three categories of location. The very low level of supporting workers noted in 2013 had increased significantly. The fall in employment, particularly of L1 and 2s, strangely, was not reflected in the work hours.

Total work hours, apparently, reached 1,694,393 (1,192,605 in 2013) and average work force totalled 664 (a fall from 691 in 2013). This suggests a utilisation of 2,552, well in excess of that expected.

It is suspected that the largest single contributor to the figures has either omitted 'Other' category worker numbers or systematically submitted greater work hours for every quarter and this may explain the anomalous overall figures.

Training hours totalled 69,643, a marginal increase over the 2013 figure of 67,314 and about 4% of the work hours. This gives an equivalent of only 26 full time in training but the queried utilisation of 2,552 should be noted as this affects the number. A more realistic number would be ~ 34 as a minimum.

Fig. 19 South Africa - Employment

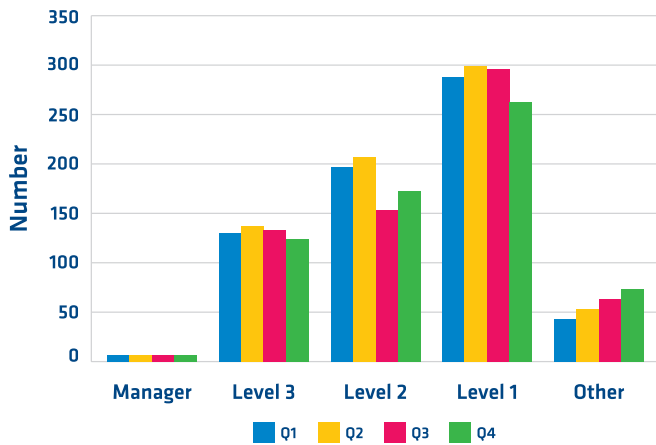
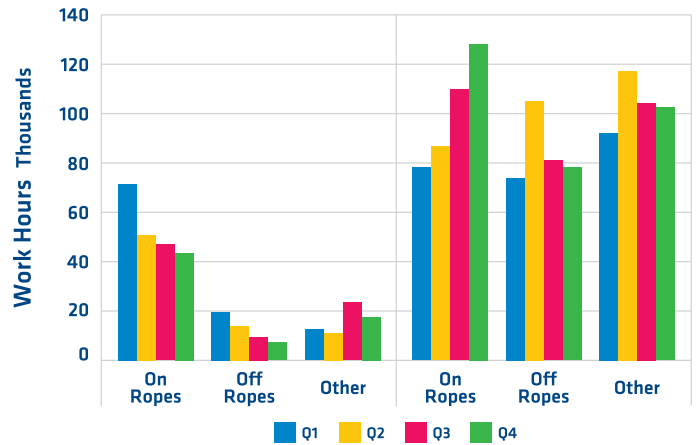


Fig. 20 South Africa - Work Hours



### 3.4.9 South East Asia

Member companies increased during 2014 from 28 to 35 with about 10-15 contributing significant figures. This may account for less erratic profiles than in 2013. Noticeably, onshore working increased significantly accounting for about 2/3rds of all work hours.

Total average employed was 1,597, marginally higher than 1,520 in 2013. Accumulated work hours totalled 2,102,541, a significant fall from that achieved in 2013 of 2,865,951, giving an average per worker of only 1,377 hrs per annum, well below that achieved in 2013.

The work hours declined Q by Q for in nearly all categories with a final Q4 value only ~20% of the total (instead of 25%). The declining work hours were consistent with declining employment levels for all grades although the rates of decline were less for employment numbers and this accounts for the reduction in utilisation.

The training hours increased marginally from 91,882 to 94,154 (4.5 % work hours), a positive sign given the decline in employment numbers and particularly as the training hours did not reduce Q by Q. Equivalent full time employed in training was 68.

Fig. 21 South East Asia - Employment

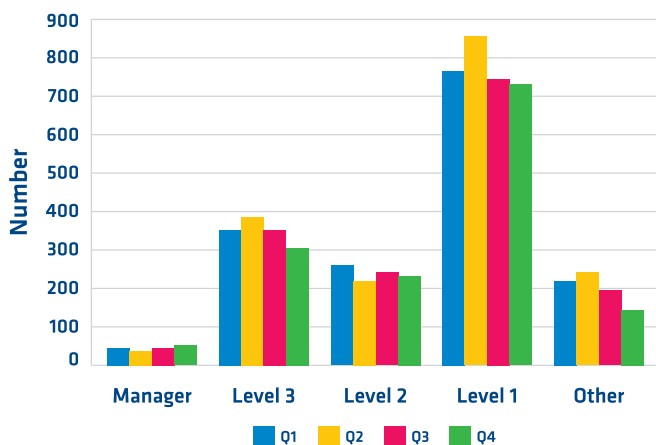
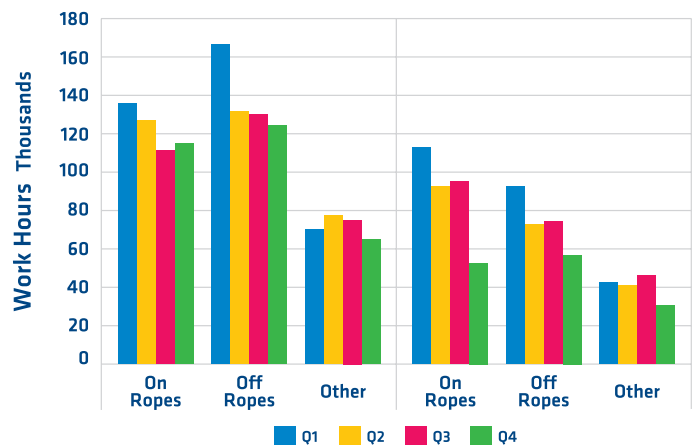


Fig. 22 South East Asia - Work Hours



# 3.4.10 United Kingdom

UK was not identified as a specific RAC in 2013. The charts are based on figures submitted by between 91 and 98 UK member companies within the UK RAC.

It is immediately obvious that there was an apparent significant drop in offshore work hours for Q2 in the below charts. Although it has not been possible to identify individual cases, it is suspected that significant data has been omitted or that some confusion arose during the transition for some UK companies that operate both within the UK and within N Sea Operations. One explanation is that the number of L3s and L1s fell sharply and then appeared to immediately recover the following quarter. Whilst this might be possible with L1s, it is difficult to imagine how this could be achieved for L3s.

Therefore, fall in Q2 offshore reported hours and employment is most probably a result of under-reporting for that particular Q by some largely offshore working members. The net result is that total hours reported was only 3,593,217 with an average workforce of 3,219, giving a utilisation of only 1,116 hrs/annum, significantly below average. Overall, there was little difference between onshore and offshore (roughly 1.8 million hours each) although on rope working onshore was significantly higher than for offshore.

Fig. 23 UK - Employment

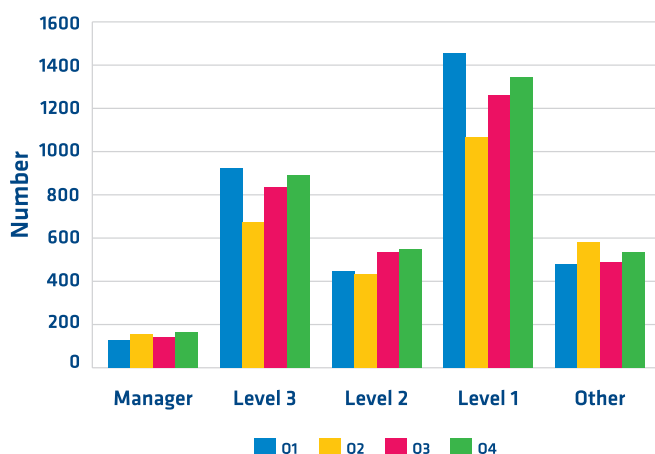
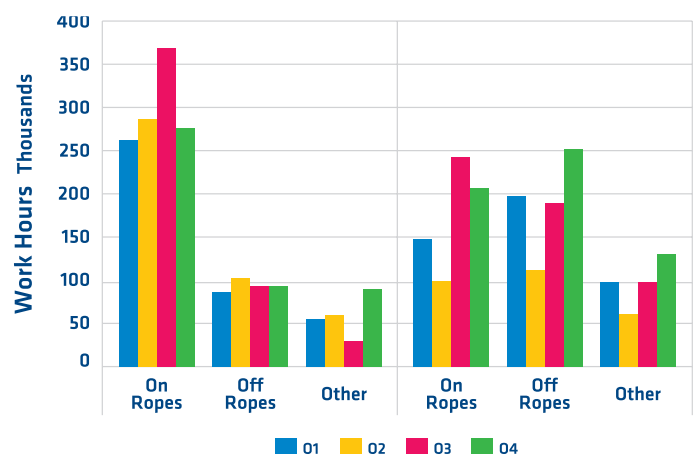


Fig. 24 UK - Work Hours



*“The 2014 health and safety statistics improved still further and continue to be a credit to members of the Association.”*



*“Members will be exhorted to submit all reports, however trivial, and the revised reporting scheme in operation for 2015, should make the process much simpler and more effective.”*

### 3.4.11 Other

Members reporting under ‘Other’ numbered over 100 in 2013. Due to changes in Regional Advisory Committee demarcations, ‘Other’ now only included 43-47 member companies. Therefore, numbers were no longer comparable. The diversity of member companies that fall within this RAC has been noted; thus, there is little common ground and the totals shown below cannot be used or interpreted other than as supplements to overall totals.

Total work hours reached 1,098,377, roughly split 615,000 Onshore and 483,000 offshore. Average employed was 988 giving an utilisation of 1,112 hrs/annum per worker, well below average.

Training hours totalled 61,361, giving an above average 5.6 % of working hours and an equivalent of 55 full time workers.

Fig. 25 Other - Employment

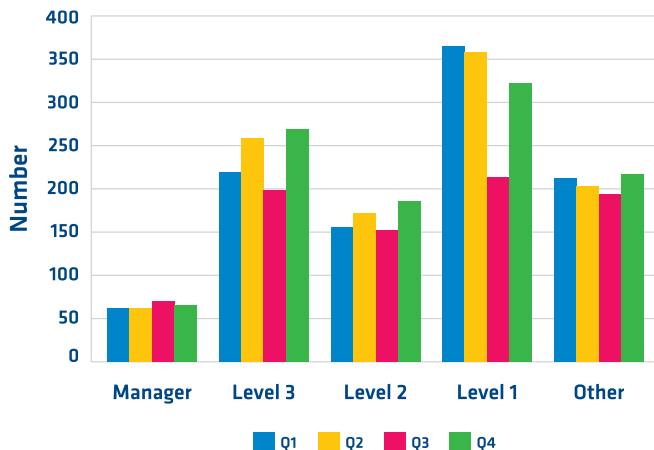
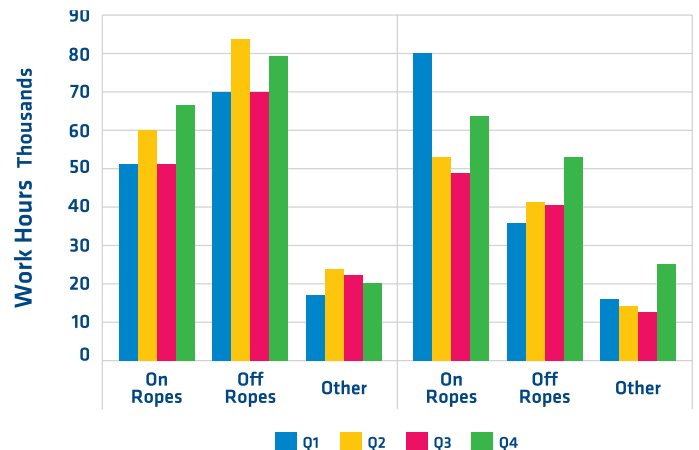


Fig. 26 Other - Work Hours



### 3.4.12 Summary of RAC data

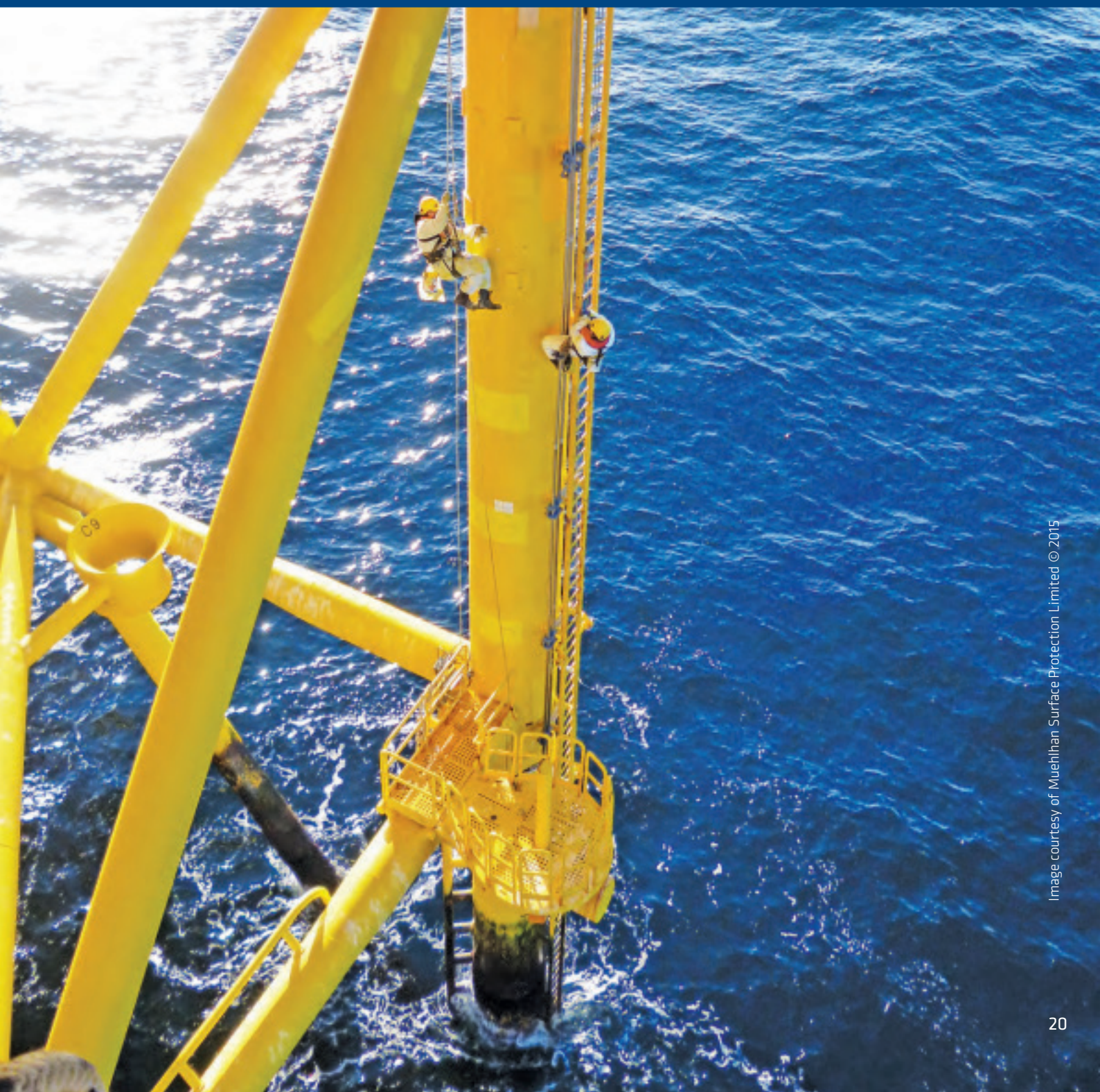
The table below summarises the employment and work hours along with training data, including the percentage of work hours contributed by each RAC to the total. The additions and changes to some RACs prevented comparisons in data between 2013 and 2014. Noticeably, in the table shows the lack of correlation between the number of member companies within RACs and the corresponding employment figures.

RAC	Number of Members	Number Employed	% of Total Employed	Number of Work Hours*	% of Total Work Hours	Training Hours
AUSTRALIA	23-26	584	4.9	647,492	4	36,698
BENELUX	12-14	326	2.7	366,995	2.2	12,746
BRAZIL	15-25	753	6.3	806,085	4.9	60,799
D-A-CH	5-6	41	0.4	27,432	0.2	9,434
MIDDLE EAST	14-19	1,357	11.4	2,384,495	14.4	50,316
NORTH AMERICA	11-17	342	2.9	501,809	3.1	64,601
NORTH SEA OPERATORS	18-24	1,984	16.7	3,583,351	21.6	12,462
SOUTH AFRICA	8-10	665	5.6	1,694,393	8.8	69,643
SOUTH EAST ASIA	28-35	1,598	13.5	2,102,541	12.7	94,154
UK	91-98	3,218	27.2	3,593,217	21.6	247,590
OTHER	43-47	988	8.3	1,098,377	6.6	61,361
<b>TOTAL</b>		<b>11,856*</b>	<b>99.9</b>	<b>16,806,187</b>	<b>99.9</b>	<b>719,804</b>

\* Excludes Training/Assessment

# 4. Accident Statistics

The total number of accident/incident reports submitted for 2014 was only 74 (109 in 2013 and 164 in 2012). Part of the reason for this decline appeared to be problems encountered in the reporting procedure. Thus, sadly, the data may be incomplete and must be viewed with caution although assurances have been given that all reportable accidents were submitted. Nevertheless, loss of any data is regrettable.



## 4.1 Summary

The number of individuals injured, suffering sprains/strains or ill health was 34, 6 of which were reportable (over 7 day injuries, major and fatalities) within a total effective workforce of 12,369. This gives an injury rate of 2.7 per 1,000 irrespective of injury criteria, and 0.49 per 1,000 for all reportable injuries.

## 4.2 Nomenclature

For the purpose of this report, the following meanings apply to terms used in the sections that follow:

- **'Major' Injury** – Injuries that meet criteria common to most European agencies and other countries and listed in IRATA reporting arrangements. Typically, 'Major' injuries would include, for example, broken major bones, any amputation, major dislocation, loss of eyesight and need for resuscitation. There is no associated criterion for 'days off work'.
- **'Over 7 Day Injury'** – Not a 'Major' injury but an injury requiring **more than seven days** away from normal work irrespective of cause. 'Serious' is the term used in Eurostat statistics and is synonymous with 'Over 7 Day Injury'.
- **'Less than 7 Day Injury'** – The reporting criterion for a non-reportable accident changed and is now 'less than 7 days off work'(although required to be recorded in the UK by duty-holders). 'Less than 7 Day Injury' directly equates to a Not Reportable Accident (NRA). If ANY injury is incurred, no matter how trivial, the minimum reporting level is 'Less than 7 Day Injury'.
- **'Dangerous Occurrence' (DO)** – Incident that could have resulted in injury or death but none was incurred. DOs are not allocated to specific worker or grade category because many incidents may not be attributable to or affect specific individuals. There must be no actual injury but there must be potential for injury.
- **Ill Health** – Medical conditions leading to interruption or suspension of work due to non-injurious cause e.g. psychological, heat- or cold-stress, taken un-well (headache, stomach upset) or other non-trauma medical condition brought on by or made worse by work. If 'over 7 days' lost, reported as 'Serious'.
- **Sprains/Strains** – Muscular injuries that result in prevention or cessation of work. As above, if 'over 7 days' lost, reported as 'Serious', otherwise as 'less than 7 day injury'.
- **Reportable Accidents** – for comparative purposes later, this term is the total of all fatalities, major injuries and serious injuries (>7-days off work). Thus, less than 7 day injuries and DOs are excluded when comparisons are made with other statistical data.

## 4.3 Consequence of Accidents / Incidents

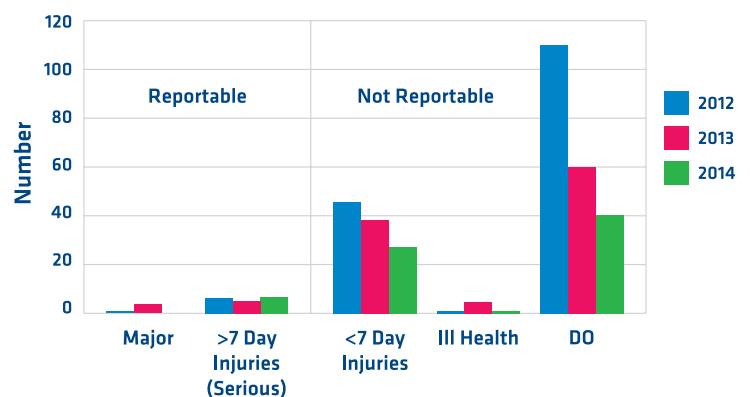
The consequence of all reported accidents and incidents is shown on the chart below together with those for the previous two years. What will be immediately apparent is that the decline in reporting numbers is due to a fall in reported Dangerous Occurrences and Less than 7 day Injuries. As noted previously, it is understood this may be partly due to reporting difficulties.

The continuing decline over the last three years is of concern for several reasons. Firstly, it may suggest an increasing reluctance to report; secondly, the omission of significant numbers of incidents and accidents, no matter how trivial, reduces the value of the database and the statistical value of 'lessons learnt'; thirdly, it hinders attempts to identify possible trends in data; finally, it casts doubt over the validity of the analysis and potentially undermines trust in the subsequent calculation of accident rates, which hitherto, have benefitted from a high degree of confidence. Accordingly, members will be exhorted to submit all reports, however trivial, and the revised reporting scheme in operation for 2015 should make the process much simpler and more effective. The chart shows the demarcation between reportable and not reportable accidents/incidents.

The absence of any Major accidents may be noted. The fatal accident in 2013 is omitted. The single ill-health item was an aggravated hernia during training.

On 16 June 2011 a fatal accident was reported in the North Sea when a rope access worker fell from a platform 23 m into the sea. Both his ropes had been severed as they ran over a sharp edge. On 2 February 2015, at Aberdeen Sheriff Court, the employer of Lee Bertram, 37, was found guilty of an offence under the UK Work at Height Regulations, 2005, and fined £100,000. Lessons learnt from the accident have been widely promulgated by the employer. Condolences go out to all friends and relatives of Lee Bertram. At the time of writing, there was no further information on the fatality that occurred in 2013.

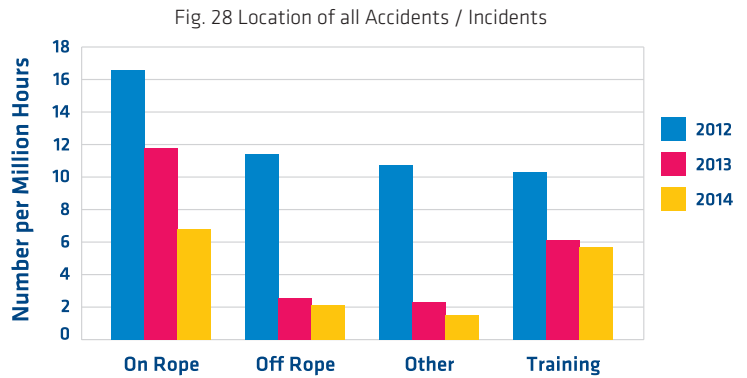
Fig. 27 Outcome of Accidents / Incidents



## 4.4 Location of Accidents / Incidents

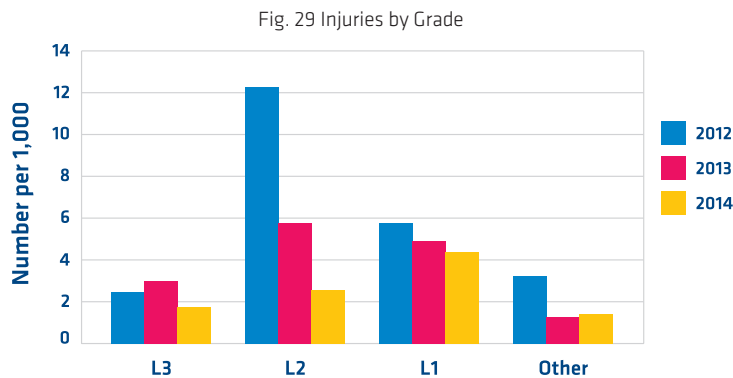
Fig.28 shows the distribution of all 74 reported accidents/incidents, according to location, alongside figures for 2012/3. To take into account differences in working hours for each location, numbers must be divided by the working hours for each location (see Fig 4) to give number of accidents/incidents per million hours of work.

The chart may be misleading because the number of actual events was low for both Training (5) and 'Other' (4) categories. Even single events would make substantial differences in both cases. What is apparent, however, is that a general downward trend continues for 'On Rope' working but with little change in other categories.



## 4.5 Accident Events by Grade

Fig.29 shows the rates of injury for each Level or grade, excluding managers (nil), obtained by dividing the actual number of injuries by the average population of each Level or grade (see Fig 2). This takes into account differences in population for the different Levels/grades. The figures for 2012/3 are included in the chart.



The immediate finding is that there was a substantial fall in injury rate for Level 2s, continuing the trend from 2012/3. The rates for L1s and 3s remained almost the same as for 2012/3 so that now there was little difference between all three Levels which lay in the range 1-4 injuries per thousand. However, the numbers involved are statistically small particularly for L2 (5), L3 (5) and 'Other' (2). Both injuries sustained by 'Other' were to trainees. If the population for training is taken as 513 effective full time personnel, the injury rate for training in isolation would be 3.9 injuries per 1,000.

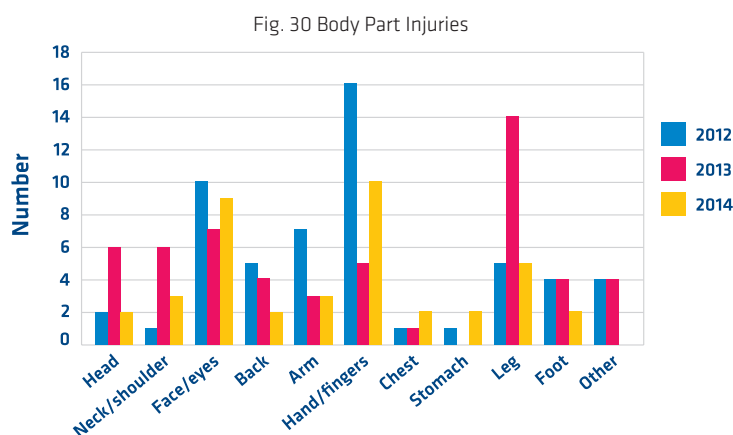
One change of significance in Fig 29 was that L1s were now twice as prone to injury as either L2s or 3s, but, again, fortunately, the data is sparse.

GRADE	MAJOR	>7 DAY	<7 DAY
L3	0	1	4
L2	0	2	3
L1	0	3	18
Other	0	0	0
Training	0	0	2

What the chart does not show is the seriousness of the injuries sustained. The table summarises the data for all injuries according to Grade and seriousness of injury. Again, applying significance of such small numbers to such a large population would be unjustified; the only conclusion is that the three 'working' Levels were most prone to injury – hardly surprising.

## 4.6 Body Part Injuries

The body part injuries sustained during 2014 are shown in Fig. 30 alongside those for 2012/3. These are actual numbers and do not take account of different employment levels or work hours (i.e. time at risk). Additionally, multiple injuries sustained in a single event are shown individually. For example, a foot and hand injury arising from a fall would be shown as two injuries in the chart. Thus, there will be more injuries shown than the number of actual accidents. Once again, the relatively low numbers recorded inhibit a close analysis but some points do arise from the limited data.



Although there was a fall in injury total, there are some areas of concern, notably the face/eye injuries (a recurring problem) and hand/finger injuries. Of the nine face/eye injuries, five occurred off rope and the remaining four on rope. Only three were caused by particulates entering eyes, the remainder were due to impacts to the face by a variety of items.

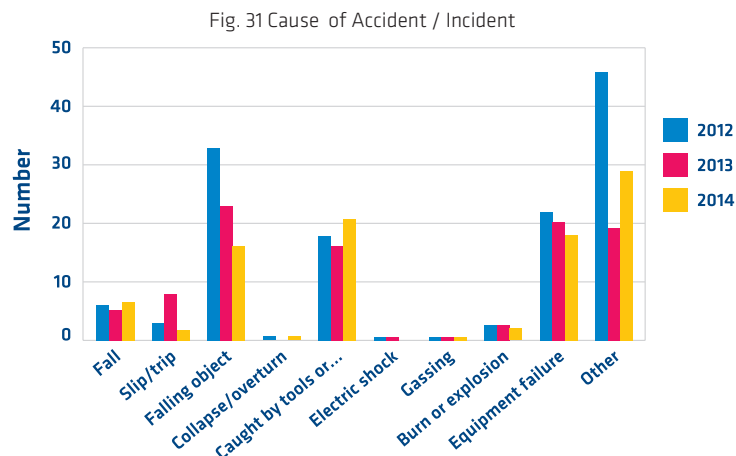
Hand/finger injuries re-emerged as the highest single category of injuries with ten reports. Seven were caused by crushing or impact, two due to cutting by sharp edges (one of which was an over 7 day injury) and a single rope burn during training. One hand injury was one of several injuries sustained in a serious fall; whilst no single injury might have been a 'Major' injury, the overall severity of the accident may have justified the designation. One of the hand injuries, caused by impact of a falling object, was accompanied by a head injury requiring stitches.

Of the remaining 'Over 7 day' injuries two were caused by strains (shoulder) or sprains (ankle) – the latter due to slipping on a grease patch, the former during aid climbing. Although not distinguished above, there were six incidences of injuries reported due to sprains/strains including the two leading to over 7 day injuries. The remainder were also sustained on ropes, two of which during training.

## 4.7 Causes of Accidents / Incidents

Allocation of a single specific cause for an accident or incident is rarely possible or even accurate. Only the category that most closely describes the immediate cause of an accident or a dangerous occurrence is usually submitted in reports. It is fully acknowledged that this is a serious weakness of this analysis as it fails to identify true root causes which must, inevitably, include an element of human error or omission. However, given these limitations, there are some potentially useful points that arise even from a superficial examination of immediate causes.

In Fig.31, it should be noted that 'Human Error' was omitted. It may be safely assumed that human factors will always be present in any event, one way or another. There may be more than one cause identified for an event, hence, the number of causes in the chart well exceeded the number of reported events. Of the 98 individual causes identified in the chart for 2014, only about 30% actually resulted in injury. It should also be noted that, again, absolute numbers were used with no account of populations. 'Slip and trip' events (2) have been separated from 'falls' because the distinction is appropriate to this industrial sector.



Three consistently significant areas of concern became apparent: 'falling or dropped objects', injuries due to handling tools or equipment and failure or mal-operation of plant and equipment. Of the 16 cases of falling objects, nine were due to items dropped, varying from assorted climbing equipment (slings, karabiners, fall arresters) to bags and tools. The remaining seven were various components (chain block, metal plates, and pieces of piping) and one case of 3rd party weld spatter that caused an eye injury to a technician working below. Two further injuries due to falling objects were caused by the falling chain block and dropped washers – fortunately none serious.

Reported events from handling tools and materials totalled 20 of which 14 incurred less than 7 day injuries and one a serious (over 7 day) injury. The majority (15) involved various items of equipment (chain blocks, reciprocating saw, hydraulic components and tools) and impacts with structural items (nets, cladding). Five were due to a miscellaneous assortment of materials from flakes of rust, rock drilling dust, up to 300kg of iron ore, ejected ball bearings from hydraulic jack and sparks from an angle grinder. Mal-operation of tools/equipment was a feature in at least 13 cases which suggested that improvements in handling tools and equipment should be considered, particularly those capable of substantial energy storage/delivery. For example, pre-use checks of tools and equipment and their safe operation would be a suitable tool box talk item.

One feature was that several incidents and accidents were caused by mal-functions together with equipment failures. These totalled 18, many of which were also allied to handling tools. In seven cases, human error or omission was clearly involved in the apparent failure or mal-function of equipment.

Although not specifically identified, a count was made of incidents involving 3rd parties that, either directly or indirectly, contributed to reported accidents or incidents. Eight cases were identified, varying from unauthorised entry to work area to more serious concerns such as four dropped objects, accidental operation of equipment in the immediate vicinity of rope access workers and welding above a rope access technician causing actual eye injury. One incident of vapour cloud release led to the single report of gassing (with two workers involved).

A second count was also made of rope access related items involved in reports. A total of 32 were noted that varied from relatively minor instances of equipment out of date to sustained injuries following falls. The table below is a summary of the findings in broadly applicable categories:

CATEGORY	NUMBER	INJURIES
Misuse of or dropped rope access equipment	9	1x <7 day injury 1x >7 day injury
Omissions	4	1x <7 day injury
Faults/failures to operate	4	
Sprains/strains	8	6x <7 day injuries 1x >7 day injury
Rope damaged /severed	7	1x >7 day injury

'Omissions' included failure to rig rescue equipment and unintentional detachment leading to a fall. The major concern must be the continuing frequency of **damaged or severed ropes totalling seven instances** (13 in 2012, 8 in 2013). Another instance of an elevator cutting ropes was recorded though, fortunately, no injuries occurred on this occasion. Leaving ropes in place overnight again resulted in wind damage in one case. Two strange reports included a rope (single?) untying itself leading to a fall (but no injury reported) and a rope 'snapping' on taking up strain but with no further explanation – difficult to envisage under normal usage.

All 29 'Other' items were included under one or more of the above. It now remains to examine the seven falls one of which was whilst traversing a gangway that collapsed. The remaining six occurred on or from ropes. Three were a result of uncontrolled rope descents due to poor technique. Two occurred during training, one detaching accidentally from all ropes and the second a fall onto his cowstail during aid climbing. The last was a 5 floor fall, in steps, during an attempted unsupervised abseil and resulted in multiple injuries.

## 4.8 Time Lost

Reported days off work totalled about 136 or about 136/12,519 = ~ 0.01 days per person, as in 2013. This is identical to the EU 28 days lost for 2012 (latest) which was ~ 2.5 million days per 350 million working population or about 0.01 days per person. Equivalent figures for UK (HSE data) lie in the range 0.13-0.21 days lost per worker due to injury and about 1 day lost per worker due to combined illness and injury.

(<http://appsso.eurostat.ec.europa.eu>)

(<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>)([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=hs\\_w\\_mi02&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=hs_w_mi02&lang=en))

(<http://www.hse.gov.uk/statistics/lfs/index.htm#allinjuries>)  
table INJIND2

If only the reportable accidents are considered (6), the average is about 18 days per accident and an accident rate for 'reportables' (over 7 day and majors) of 0.48 per 1,000 workers. This is about 10% of the Labour Force Survey (LFS) figure of 5 per 1,000 for 2013/14. US private industry median figure for 2013 was only 8 days but the range over various industries was wide and included all injuries, without days off work criteria and, perhaps, equates more closely to the overall IRATA figure of 4.1 days per reportable and non-reportable accidents. The overall US incidence rate was 10.9 injuries and illnesses per 1,000 workers, about twice the LFS figure.

(<http://www.hse.gov.uk/statistics/industry/index.htm>)

(<http://www.bls.gov/iif/home.htm>)

(<http://www.hse.gov.uk/statistics/overall/hssh1314.pdf>)

## 4.9 Other Factors

**Weather Conditions** – Only one report clearly identified weather as a factor in a Dangerous Occurrence when wind damaged ropes left out overnight.

**Rescue** – Rescue was required in only one case.

## 4.10 Working on Ropes

Understandably, there is interest in the statistics for On Rope working in isolation. The number of injuries and instances of ill-health during on rope working for 2014 was as follows:

<b>Over 7 Day Injury</b>	<b>5 (Reportable)</b>
<b>Less than 7 Day</b> (includes Strains/Sprains)	<b>15</b>
<b>Ill Health</b>	<b>1</b>
<b>TOTAL</b>	<b>21</b>

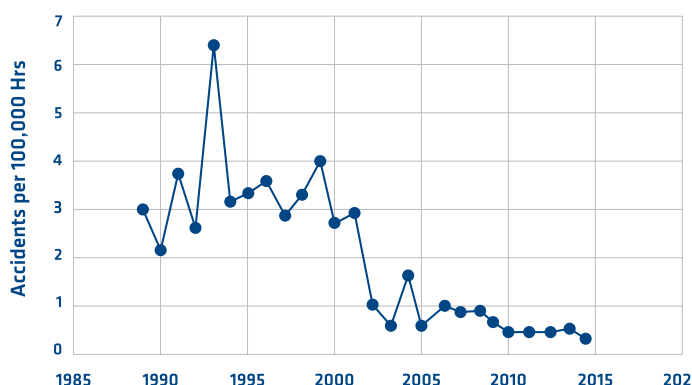
The total hours worked on rope in 2014 was 7.59 million hours. Thus, the accident rate per 100,000 hours is given by:

$$\text{Total injuries} \times 100,000 / \text{Total Work Hours on Rope} = 21 \times 105 / 7.59 \times 106 = 0.28 \text{ all accidents per } 100,000 \text{ hours}$$

(This equates to 560 per 100,000 fully employed workers for all injuries or ~140 per 100,000 for reportable injuries).

Table 1 in Appendix is a compilation of data since 1989 and is extended to include the above figures. A graphical presentation of the accident rate per year is shown in Fig 32 below.

Fig. 32 Accident Rate for all Accidents on Rope



The continuing maintenance of an accident / incident rate of less than about 1 per 100,000 hours of work on rope since 2005 and less than 0.5 for the last five consecutive years is a notable achievement. It is emphasised that the graph is based solely on accidents that occurred whilst on ropes and includes all accidents including Less than 7 Day, Ill Health and Strains/Sprains. Thus, it cannot be used to compare against other sources of data that are based on reportable accidents.

Whilst the achievement of such a low accident rate must be recognised, the following were reminders that significant threats to safety remain particularly when on rope:

- 32 rope related accidents or dangerous occurrences, 11 leading to injury
- 5 uncontrolled descents due to poor technique or detachment, one leading to multiple injuries
- 8 instances of strains or sprains, 7 leading to injury
- 9 instances of mal-operation or dropped objects by rope access technicians when on rope
- 7 damaged or severed ropes.
- 8 identified instances of 3rd party involvement in accidents/incidents on site.

Thus, continuing vigilance should be maintained to ensure the safety of rope access technicians.

# 5. Comparison of Accident Data

## 5.1 Basis for Comparison

Conventionally, accident statistics are based on accidents per 100,000 workers. To maintain consistency with this practice, it is necessary to convert actual accident numbers to that equivalent to a workforce of 100,000. The workforce for 2014 was 12,519, but, as shown earlier, this does not equate to the hours worked of 16.81 million for a fully employed workforce and 0.72 million for training.

To maintain a pessimistic analysis and to avoid any possibility of criticism, a workforce corresponding to the hours worked, including training, will be used i.e. time at risk.

This gives  $16.81 + 0.72$  million hours / 2,000 hrs per person per annum = **8,770 for a fully employed workforce**, considerably less than the reported workforce. This will lead to an increase in the accident rates to be calculated. The 'multiplication factor' for accidents becomes:

- $100,000 / \text{Number of Employees} = 100,000 / 8,770 = 11.4$

This figure is, in effect, the multiplication of any single event to reach the equivalent for a workforce of 100,000. Using the above, figures for the injury rate in 2014 becomes:

- Serious (> 7 Day) Injuries  $6 \times 11.4 = \mathbf{68.4}$  injuries per 100,000

*“Continuing vigilance should be maintained to ensure the safety of rope access technicians.”*



## 5.2 Comparison against UK, EU and USA Data

The UK Health and Safety Executive (HSE) website key figures for 2013/14 provisional data for employees in selected industries are tabulated below together with equivalent IRATA figures.

Overall, the IRATA figures in the table remain well below all categories including 'Service Industries'. HSE acknowledges that Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) data is ~ 50% under-reported. Additionally, it will be recalled that IRATA figures are pessimistically based on a workforce deduced from hours worked.

Therefore, the overall IRATA injury rate is less than a third of the UK All Industry rate and perhaps 15-25% or less than that for comparable industries. The figures fall even further if the under-reporting to RIDDOR is taken into account.

(<http://www.hse.gov.uk/statistics/tables/index.htm#riddor>)  
(Table RIDIND – 2013/14p)

INDUSTRY	MAJOR INJURIES	SERIOUS (>7-DAY INJURIES)	TOTAL (INC FATAL)
Agriculture, Forestry & Fisheries	194	312	513
Mining and Quarrying	100	216	319
Manufacturing	121	399	520
Construction	150	260	412
Service Industries	61	204	266
All Industries	74	231	305
<b>IRATA</b>	<b>0</b>	<b>68</b>	<b>68</b>

(All figures in rounded numbers of injuries per 100,000 employees).

Direct comparison against EU figures, discussed below, is limited for several reasons not least because they include road traffic accidents (but not commuting) and all injuries of over 3 days off work. Latest available EUROSTAT figures are still for 2012 although the last up-date in the table below was 11-05-2015 (presumably to include late submissions going back to 2012). EU 27 figures were similar to those for EU 28.

In order to compare data it is necessary to extract those accidents that more nearly approach the '3 day' criterion used by Eurostat in 2012 and add them to the 'less than 7 day' accidents. The total rises to only 8 accidents which gives a rate of  $8 \times 11.4 = 91.2$  injuries per 100,000. This figure may now be compared to EU 28 figures:

INDUSTRY	EU 28
Agriculture, Forestry & Fisheries	1,365
Mining	1,576
Manufacturing	2,096
Construction	3,058
All NACE	1,554
<b>IRATA</b>	<b>91</b>

(All figures numbers of injuries per 100,000)

[www.hse.gov.uk/statistics/european/tables.htm](http://www.hse.gov.uk/statistics/european/tables.htm)

<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do?dvsc=2>

(To aid finding the Eurostat data, select 'Accidents at Work ESAW 2008 onwards'; then select 'Details by economic activity and age...'; Hsw\_n2\_03).

([http://ec.europa.eu/eurostat/statistics-explained/index.php/Accidents\\_at\\_work\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Accidents_at_work_statistics)) (<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>) (Note change of units required)

Even allowing a large margin, the IRATA rate will be less than about 6% of the 'All' EU-28 figure for 2012.

Care is also needed in comparing IRATA data to USA data due to differences in the way injuries and illnesses are defined and classified. The table below presents some injury and illness data presented by

US Bureau of Labor for 2013. Figures have been converted from 'per 100 workers' to 'per 100,000'. US data is based on full-time workers working 2,000 hours per annum. In this respect, US figures are comparable to those in this report because the IRATA population has been reduced to the same 2,000 hrs/annum basis.

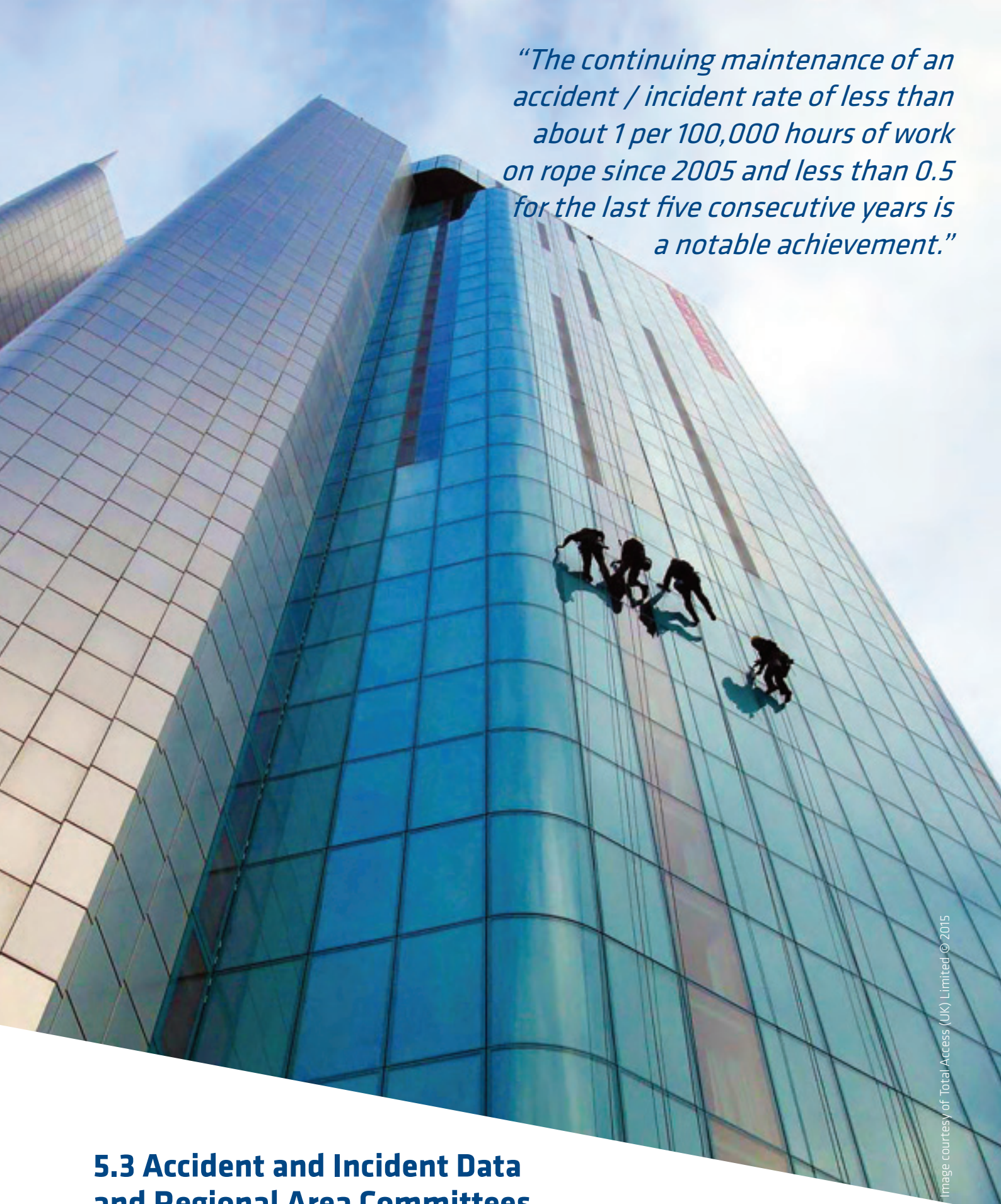
US PRIVATE INDUSTRY SECTOR	Incidence of non fatal injuries and illnesses with days away from work per 100,000	Median days off work
Agriculture, Forestry, Fishing and Hunting	2,025	6
Mining	915	24
Manufacture	1,009	9
Construction	1,547	11
All private industry	1,094	8
<b>IRATA</b>	<b>388</b>	<b>4*</b>

<http://www.bls.gov/news.release/pdf/osh2.pdf>

\*Average

The US figures selected relate to those taking time from work as a result of injury and illness at work and exclude job transfer or job restriction cases (DART). However, US figures do not have a 'days off work' criterion and inevitably will be much higher. Therefore, it would be more realistic to take all 34 injuries, irrespective of seriousness, for comparative purposes. This will result in a figure of  $34 \times 11.4 = 388$  injuries per 100,000, still well below US figures and approximately 35% of the 'All private industry' rate.

Despite adopting pessimistic assumptions and allowing for significant differences in reporting in all cases above, there can be little doubt that IRATA members continue to enjoy an enviable safety record with an injury rate only a small fraction of the figures presented by all UK, Eurostat and USA agencies.



*“The continuing maintenance of an accident / incident rate of less than about 1 per 100,000 hours of work on rope since 2005 and less than 0.5 for the last five consecutive years is a notable achievement.”*

## 5.3 Accident and Incident Data and Regional Area Committees

No attempt was made to apportion accident/incident data to RACs for the following reasons:

- RACs operate under differing conditions, environments and circumstances. Further, the types of work typically carried out vary from one to another with differing risk elements.
- Presenting a ranking order conceivably could lead to a competitive attitude that, counter productively, may result in temptation to withhold submissions particularly of none reportable incidents where most data resides.
- Finally, if low numbers of accidents and incidents were distributed between eleven RACs, the resulting statistics would be virtually meaningless.



## 6. Summary and Conclusions



*“The accident rate for work on rope was 0.28 per 100,000 hours worked for all injuries, maintaining a rate of less than 0.5 for the last five consecutive years.”*

## Membership/Employment

- Membership had risen to 315 companies by December 2014.
- Average employed increased marginally to 12,544 including an allowance for training staff and trainees of 513 derived from training hours and utilisation.
- Nearly 10,000 qualified IRATA technicians were employed by member companies, remaining almost identical to that of 2013:
  - Level 1 of 5,000**
  - Level 2 of 1,900**
  - Level 3 of 3,000**
- The virtually static workforce numbers may be attributable partly to greater utilisation and also a net result of employment levels between RACs changing, with some increasing (SE Asia, Middle East and Australia) and others falling (Benelux, Brazil, N America, S Africa).
- Work hours reached 16.8 million, an increase of 5.3% over 2013 including 7.6 million hours spent on ropes and 6.6 million hours off rope.
- Hours spent offshore and onshore were almost identical at nearly 8.4 million each.
- As with employment, some RACs had increasing work hours from 2013 levels (Australia, Middle East, S Africa) whilst others had falling work hours (Benelux, Brazil, N America, SE Asia).
- Training hours totalled 0.72 million, ~4.3% of work hours.

*“There was a significant fall in Dangerous Occurrence reporting with only 40 recorded, 30 of which were related to ‘On Rope’ working. The falling trend in reporting must be of concern.”*

## Accidents/Incidents

- Accident / incident submissions totalled 74, distributed as follows:
  - 6 Serious injuries (>7-Days Off work)**
  - 28 Less than 7 Day Off Work injuries**
  - 40 Dangerous Occurrences**
- There was a significant fall in Dangerous Occurrence reporting with only 40 recorded, 30 of which were related to ‘On Rope’ working. The falling trend in reporting must be of concern.
- The highest number of accidents and incidents was On Rope; nevertheless, this was a 50% reduction from 12 in 2013 to only 6 events per million working hours. Rates remained the same for all other categories of workers (Off Rope, ‘Other’ and Training/assessment).
- The risk of injury for L1s and Trainees was ~ 4 per 1,000 and only ~2 per 1,000 for L2 and 3s (roughly half the rate). The large reduction in L2 injuries should be noted.
- Taken together, the significant overall reduction in injury rate may be ascribed to L2s working more safely on ropes.
- Most vulnerable to injury were hands/fingers (10) and face (6)/eyes (3). Seven of the hand/finger injuries were due to crushing, trapping or impacts from tools and equipment.
- 20 of the primary causes of accidents were being caught by tools, equipment and materials with thirteen allied to mal-operation or human error; 15 led to injury, one of which was serious. This would be a suitable item for inclusion in tool box talks, both pre-use checking of equipment and safe operation.
- There were 8 instances of reported 3rd party involvement in accidents and incidents, some potentially or actually serious.
- 32 accidents and incidents involved rope access working and varied from misuse of equipment to dropped items, failures to operate correctly and strains/sprains whilst on rope. There were 9 injuries sustained including three serious injuries (over 7 days).
- Of 16 falling or dropped objects, 9 were due to technicians dropping rope access equipment and tools.
- There were five uncontrolled or detachment from rope falls.
- There were **7 instances of damaged or severed ropes** from various causes.
- The accident rate for work on rope was 0.28 per 100,000 hours worked for all injuries, maintaining a rate of less than 0.5 for the last five consecutive years.

## Comparison of Accident Rates with All Industry Data

- The reportable injury rate of only **68 per 100,000 workers** (85 in 2013) remained well below all international statistics for all reportable injuries.
- UK (LFS) quoted 305 per 100,000, and was estimated to be ~50% under-reported i.e. the IRATA figure was **less than 12% of the UK figure**.
- Latest EU29 (Eurostat) figures for 2012 quoted 1,554 for over 3 day injuries. The equivalent over 3 day injury rate for IRATA was 91 per 100,000, **about 6% of the overall European figure**.
- All Private Industry latest 2013 figures released by USA (BLS) Dec 2014, reached 1,094 injuries per 100,000. IRATA data, converted to the nearest equivalent for a fully employed workforce and entering all injuries, irrespective of seriousness, gave 384 injuries per 100,000, **only ~35% of the USA (BLS) figure**.

*“The reportable injury rate of only 68 per 100,000 workers (85 in 2013) remained well below all international statistics for all reportable injuries.”*



# Conclusions

1. Membership should be congratulated on a continuing excellent health and safety record.
2. Employment levels have remained virtually static for the first time in 25 years despite increases in membership and reported working hours.
3. This may be partly attributed to increase in utilisation of workers and also linked to net changes between various RACs.
4. There is concern at the declining number of reported accidents and incidents over the last three years. This could reduce confidence in the analysis presented.
5. The accident rate for reportable injuries had fallen still further, remaining well below all industry international figures.
6. There remain a number of areas where further improvements in work safety could be achieved, highlighted under Recommendations.

## 7. Recommendations

1. Given the collective data on accidents and incidents occurring in various situations, the excellent safety record could be further improved by:

- (a) **Pre-use inspection of all hand and power tools prior to use on rope and ensuring familiarity in safe use and operation by all workers prior to work start (e.g. tool box talk item).**
- (b) **Prevention of dropped objects particularly when 'on rope'. (Another tool box item?)**
- (c) **Maintaining compliance with rope access procedures at all times, particularly when descending on rope, including during training/assessment.**

(d) **Prevention of rope damage – this continues to be an area of concern.**

(e) **Maintaining protective vigilance of the worksite at all times. This is particularly the case when working with or alongside 3rd parties.**

2. Members should be reminded of the requirement to report all accidents and incidents, however trivial.

## Acknowledgements

The assistance of IRATA staff in compiling, arranging and presenting data is gratefully acknowledged. Also recognised is the considerable

effort of member companies staff who produce and submit the data required. This report could not be prepared without their help.



*“The highest number of accidents and incidents was On Rope; nevertheless, this was a 50% reduction from 12 in 2013 to only 6 events per million working hours.”*

# Table 1

## Accident Rates for 'On Rope' Working - 1989-2014

Year	Number of Members	Hours on Ropes	None Reportable Accidents	Reportable Accidents on Ropes	Accident Rate for Reportable Accidents* ***	Accident Rate for All Accidents* ***
1989	9	267504	8	0	0	3
1990	12	327645	7	0	0	2.13
1991	16	457928	17	0	0	3.71
1992	22	537920	13	1	0.19	2.6
1993	23	327000	21	0	0	6.42
1994	32	348749	11	0	0	3.15
1995	32	484285	16	0	0	3.31
1996	26	559035	18	2	0.36	3.58
1997	31	699688	11	9	1.29	2.86
1998	37	1006538	23	10	0.99	3.3
1999	33	803365	29	3	0.37	3.99
2000	34	887206	21	3	0.34	2.71
2001	49	999010	25	4	0.4	2.9
2002	49	1225930	12	0	0	0.98
2003	56	1634482	9	0	0	0.55
2004	67	1457848	22	1	0.07	1.58
2005	81	2311265	10	3	0.13	0.56
2006	95	2132141	21	1	0.05	1.03
2007	130	2765483	21	2	0.07	0.83
2008	149	3859584	25	8	0.21	0.85
2009	170	4582642	15	14	0.33	0.63
2010	184	5247365	18	4	0.08	0.42
2011	217	5209056	17	5	0.1	0.42
2012	247	5655637	19	4	0.07	0.41
2013	277	7012270	28	3	0.043	0.44
2014	315	7591977	16	5	0.066	0.28
<b>TOTAL or AV</b>		<b>58391553</b>	<b>453</b>	<b>82</b>	<b>0.20</b>	<b>2.02</b>

\* Units for Accident Rate (AR) number per 100,000 hours worked

\*\* Col 5 divided by hours x 100,000

\*\*\* Col 4 + 5 ditto

Note that Not Reportable Accident (NRA) equates to 'Less than 7 Days off Work' injuries and Strains/Sprains and Ill Health (if less than 7 days off work).

# Table 2

## Summary of Employment by Grade - 2014

### Average Quarterly Number

RAC	Managers	Level 3	Level 2	Level 1	Other	Total	Training
AUSTRALIA	36	186	93	194	75	584	33
BENELUX	22	85	64	92	63	326	11
BRAZIL	28	142	96	273	214	753	57
D-A-CH	2	13	7	15	4	41	14
MIDDLE EAST	43	204	219	660	231	1357	29
N AMERICA	17	117	56	114	38	342	44
N SEA OPERATORS	36	658	294	921	75	1984	7
SOUTH AFRICA	7	132	184	286	56	665	26
SOUTH EAST ASIA	40	348	235	775	200	1598	68
UK	139	820	474	1275	510	3218	221
OTHER	67	236	166	315	204	988	55
<b>TOTAL</b>	<b>437</b>	<b>2941</b>	<b>1888</b>	<b>4920</b>	<b>1670</b>	<b>11856</b>	<b>565*</b>

**TOTAL EMPLOYED: 11,856 plus 513 effective full time in training/assessment.**

Rounded numbers

\*Note that the total training number of 565 differs from the value of 513 derived by dividing total training hours of 719,804 by the averaged utilisation of 1,402 because each RAC training number is obtained using the utilisation figure for each RAC.

# Table 3

## Summary Data of Working Hours - 2014

### Hours Worked in Various Locations

	On Ropes Onshore	Offshore	Off Ropes Onshore	Offshore	Other Onshore	Offshore	Training & Assessment
Q1	928644	810426	754176	742582	260165	354925	185286
Q2	997387	820992	725062	860766	283148	391693	168939
Q3	1159863	864846	749938	825578	261903	374962	193018
Q4	1051728	958091	912371	1025669	333203	358069	172561
<b>TOTAL</b>	<b>4137622</b>	<b>3454355</b>	<b>3141547</b>	<b>3141547</b>	<b>1138419</b>	<b>1479649</b>	<b>719804</b>

**TOTAL WORK HOURS: 16,806,187**

**Onshore Total 8,417,588 hrs Offshore Total 8,388,599**

(Data for Tables 2 and 3 courtesy of IRATA secretariat)



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