



Report on the incidents reported by IRATA companies for 2006

This report concerns the incidents reported by members of IRATA for 2006. While particularly commenting on the incidents occurring while working on ropes, it also reviews general activities of members shown in the member's returns including work off ropes but associated with normal IRATA activities. The report provides a detailed breakdown of the nature of the incidents and the way in which the pattern of accidents has varied over the years. Comments are made, based on these results, on those areas which require special care or control.

The single most important point about this report is that it shows that the risks to safety from working from ropes is well controlled and IRATA members should be well satisfied with the figures but at the same time being determined to maintain or improve this excellent record.

The nature of IRATA members work as indicated by the returns.

Ninety five sets of reports were submitted for the year, six of which gave a nil return and thirteen were for only part of the year. This is an increase on previous years and indicates that IRATA continues to expand across the world.

These returns show a slightly lower level of activity in carrying out rope work and a marginally greater amount of work done on rope access sites. However, these changes are probably so small that they cannot be used to suggest any real change in the level of activity by members. The number of reported incidents, particularly off ropes, is significantly larger than in 2005 while the number of the most serious accidents, again off rope, has risen significantly, largely due to one incident in which six persons were injured. The overall incident rate for all incidents while on ropes is lower than 2005 which probably reflects the continuing effectiveness of the IRATA system.

Approximately 25% of the work listed in the returns was carried out by companies outside Great Britain in many parts of the world. This is discussed later in this report when reviewing table 5, but it should be noted that the returns from these companies do not have any great adverse effect on the overall IRATA figures.

Quite a number of companies seem to have either a partial or complete training/assessment role although, as the returns do not specifically ask for this information, it is impossible to suggest how many are so involved.

Another feature which will be discussed in more detail later when reviewing table 2.a, is that work off ropes accounts for some 43% of the workload. It is probable that this percentage is probably even higher as the returns suggest that the recording of these hours is not undertaken as diligently as recording hours worked on ropes. The significance of this for IRATA is that such work is outside the IRATA system and the variability of such other related work probably accounts for the higher incident rate already noted above. However, this rate is not particularly high when compared with the national average for work related injuries and probably reflects that the discipline required for rope access work is applied in these other areas so that there is more control over work related risks.

Commentary on the attached tables.

Table 1 gives a running total of hours worked on ropes and incidents occurring for each of the past 18 years and a total for all these years. The most interesting detail in this table is the comparison of the results for 2006 when compared with the running total. It can be seen that the incident rates for 2006 are significantly lower than those for the whole 18 years. This shows that the IRATA system is well established and produces results that should give high levels of confidence in those who contract IRATA members to undertake work at height. It is particularly interesting that the figures should be at a low level from an already low level for the past 5 years and sets a very suitable general standard for the norm for the association.

Another interesting figure is that for reportable accidents, one that not only allows a comparison with other industrial sectors but also shows that such incidents are at a very low level.

To demonstrate the way the total average for these results has altered over the years, that is how the total experience of IRATA and its members has developed, the table below extracts from the totals from previous reports for the past 8 years. The incident rates show that the averages, the sum total of members performance, steadily improves each year. The improvement and the standard achieved show's a high level of consistency and reliability which again should give a large degree of confidence to safety professionals and clients. In particular the figures are an object lesson on how best to reduce the number of accidents at work.

Year	Running total of hours on ropes for years up to ones stated	Number of reportable incidents (RIDDOR)	Number of other incidents (NRA and DO)	IR for reportable incidents	IR for other incidents	IR for all incidents
1999	5,819,657	25	241	0.43	4.14	4.57
2000	6,706,863	28	268	0.42	4.00	4.41
2001	7,705,873	32	308	0.42	4.00	4.31
2002	8,931,803	32	330	0.36	3.69	4.05
2003	10,566,285	32	340	0.30	3.22	3.22
2004	12,024,133	33	370	0.27	3.08	3.35
2005	14,335,396	36	389	0.25	2.71	2.97
2006	16,467,537	37	419	0.22	2.54	2.77

In **table 2.a** the hours worked when not on ropes are shown together with the proportion of work carried out by companies of different sizes. Of the hours spent working on ropes some 6% was when working off shore. Of the hours worked off ropes some 27% was spent working at height and the remainder in associated or support work.

The incident rates for all causes when working on ropes for very large, large and small companies are very similar suggesting these figures are the norm and are those that individual member companies should aim to better. These figures also suggest that there is little difference between these groups of companies in terms of the level of control exercised over their operations when working on ropes. The higher figure for very small companies probably reflects the impact of even a minimal number of incidents when related to the very few hours worked.

The incident rates when not working on ropes are much more variable than those for work on ropes shown in table 2a as can be seen in the table below.

	IR when working off ropes
Very large companies	3.32
Large companies	4.13
Small companies	25.34
Very small companies	7.34
Total	4.5

It is probable that this much wider variation is partly due to less accurate reporting levels, lower levels of control in the smaller companies when off ropes and the variability of the types of other work undertaken.

If the combined figures in table 2a for working both off and on ropes are added together and then divided by 2000, this suggests that for 2006 nearly 2000 man years were worked or just over 1000 man years on ropes.

(Note: The basis of this calculation is that as the records are for actual hours worked then one person represents approximately 8000 hours of work per year. In addition on average such a person may be involved with rope work for perhaps 50% of the time and there would be others not directly involved in rope work, e.g. managers, drivers, admin staff etc, who on a national data base would be included as being involved in rope access work.)

This estimate for the number of man years worked could provide a basis to be able to compare rope access companies with other sectors of industry.

Table 2.b gives the hours worked on ropes during the four quarters of the year which shows that there was a greater consistency between the hours worked during the various quarters than previous years, (see table below). This table shows the hours worked on ropes per quarter with the number of incidents in brackets and the total incident rates for the past 5 years. It also shows that on average for the five years there is a slightly greater risk of an incident in the winter months.

	First quarter	Second quarter	Third quarter	Forth quarter
2006	502,652 (7)	507,374 (7)	532,456 (10)	589,659 (7)
2005	444,368 (5)	632,044 (4)	576,918 (7)	657,736 (6)
2004	311, 913 (8)	376,191 (9)	445, 615 (7)	323,228 (7)
2003	130,344(3)	293,960 (1)	362,828 (3)	185,632 (3)
2002	314,962 (7)	193,117 (3)	202,477 (4)	182,883 (4)
TOTAL	1,704,239 (30)	2,002,686 (24)	2,120,294 (31)	1,939,138 (27)
Total I.R.	1.76	1.20	1.46	1.39

The incident rates shown in table 2.a also are more similar than for 2005 when the rate for the third quarter was twice as much as the one for the second quarter. A possible explanation for these changes in table 2.a could be that the IRATA members work load across the world is more regular.

Table 3a gives the number of reportable accidents for work on and off ropes which are less than 10% of all incidents reported. Of these reportable accidents only one occurred while working on ropes which occurred when an operators hand was trapped by a suspended load moved. The table also shows that of the 104 incidents reported some 30% occurred while working on ropes and possibly some 70% of the full total could have been due to a failure by the operator to follow good working practices. A further 8.6% are classed as failures by supervisors although these could probably be equally due to poor planning of the work as

could some of the operator failures. However without more detail it is impossible to give a clearer picture.

A summary of these results is given in the table below which again shows that the great majority of incidents can be attributed to operator failure, supervisory/planning failings are the second cause.

Year	Equipment failure	Supervision failure	Operator failure	Other
1999	Nil	8	8	2
2000	4	2	18	4
2001	4	7	30	1
2002	4	9	6	2
2003	2	Nil	5	1
2004	Nil	Nil	24	7
2005	Nil	8	13	1
2006	5	9	73	17
Totals	19	43	177	35

(Note: As I have pointed out in other reports the categorising of incidents is based on the few notes on the accident report and could be quite subjective. My justification in giving these subjective figures being to try to give a clearer picture of IRATA members performance and to indicate those areas where better control, through training, supervision and management, could improve results.)

The hours lost due to the various incidents is shown as 1769 which if multiplied by a factor of 4 as my report for 2005 is about 0.2% of the total hours worked.

In the summary of the reportable accidents between 1999 and 2006 given in the table below it can be seen that around 35% of these incidents occur while working on ropes and therefore the greater number of serious incidents are off the ropes. Considering the rates over this longer period gives a clearer picture of the true averages. This further reinforces the view that both the hazards off the ropes might be more variable and that there appears to be less control in these areas.

	Fatal	Major	Over 3 day absence from work	Totals
Working on ropes	Nil	4	9	13
Working off ropes	1	6	17	24
Totals	1	10	26	37

Table 3.b shows how incidents have occurred while working on and off ropes together with the figures expressed as a percentage. From this it can be seen that the main way incidents occur are by persons getting caught, trapped or striking themselves against something other than falling or being hit by a falling object. This is the case whether the person is on or off ropes. The usual these incidents occur are from being caught/struck by tools or materials or through getting grit in the eye.

The table below summaries these types of incident over the past 8 years while working on ropes and this shows just how big a cause being caught or trapped is over this period.

Year	Slip or fall	Falling object	Collapse or overturn	Caught, struck by tool or materials	Electric shock	Gassing or asphyxiation	Burn or explosion	Equipment failure	Other
1999	3	2	Nil	9	Nil	Nil	1	1	3
2000	1	2	Nil	14	Nil	Nil	Nil	1	10
2001	1	11	1	14	Nil	1	Nil	Nil	16
2002	1	11	Nil	3	Nil	Nil	Nil	1	5
2003	1	1	Nil	3	Nil	1	Nil	1	1
2004	Nil	4	3	8	1	Nil	8	Nil	7
2005	1	7	1	8	Nil	Nil	Nil	Nil	2
2006	1	4	1	11	Nil	Nil	3	2	8
Total	9	42	6	70	1	2	12	7	52

Table 3.c shows the parts of the body injured and shows that injuries to the hand is the main body part injured when both on and off the ropes.

A summary of the parts of the body injured over the past eight years while working on ropes is given in the table below. This summary again shows that the hand is the part of the body most likely to be injured followed by injuries to the eyes and to the leg.

Year	Head/face	Eyes	Neck/shoulder	Back	Arm	Hand/fingers	Chest	Stomach	Leg	Foot/ankle	Other
1999	2	6	Nil	2	1	2	Nil	Nil	1	Nil	Nil
2000	Nil	8	Nil	1	2	5	Nil	Nil	5	2	1
2001	1	3	2	5	3	11	Nil	Nil	1	1	1
2002	1	4	1	Nil	1	1	Nil	Nil	1	Nil	2
2003	2	1	Nil	Nil	1	1	1	Nil	Nil	Nil	0
2004	1	5	1	Nil	Nil	8	Nil	Nil	4	3	Nil
2005	4	1	1	Nil	Nil	2	1	Nil	2	1	1
2006	1	3	2	1	1	5	1	Nil	6	2	1
Totals	12	31	7	9	9	35	3	Nil	20	9	7

Table 3.d gives the grades of the workers involved in the incidents. As with previous years level 1 operatives are involved in the greatest number of incidents (a total of 48) followed by level 3's (28) and level 1's and others (equally 14). While it is not surprising that the level 1 operatives should be involved in the greatest number of incidents it is perhaps more surprising to note that Level 3's come second, a situation that has occurred in other years. A possible explanation for this is that level 3's put themselves in more exposed, less controlled situations which could indicate some underlying management/planning failure.

In the table below I have summaries the number of incidents to the various grades while working on ropes over the past eight years. This table indicates that level 1 operatives could be almost twice as much at risk as the other grades.

Year	Level 3	Level 2	Level 1	Other including trainees
1999	4	5	8	Nil
2000	5	9	8	3
2001	8	8	14	3
2002	2	6	7	1
2003	2	3	3	2
2004	8	7	12	4
2005	5	2	9	1
2006	7	6	18	1
Total	41	46	79	15

Table 4 shows the numbers of class A and class B incidents associated both with work on and off ropes and according to company size. The numbers in the brackets are the corresponding numbers for 2005.

A class A incident is one which I consider could have resulted in a very serious incident. While this is true of all incidents one where a hand is grazed or where grit gets into someone's eye are far less likely to result in a serious mishap whereas dropping something into an area where someone could be present, even if exclusion barriers etc are deployed, clearly has the potential to be very serious. Also any incident that resulted in a serious accident would also be classed as a type A incident.

In 2006 there were some 107 incidents of which approximately 20% have been classed as type A. The corresponding figure for 2005 was 49 with 14% being class A.

I can find no reason for this increase which I can only attribute to better reporting. For instance if only the numbers of incidents on ropes is considered then there were 33 incidents in 2006, 24% being class A, and 21 in 2005, 29% being class A. There variation is one that might be expected year on year.

Typical of the class A incidents is one where the working line snapped, objects dropped or overturned (7 number) and a level 1 lost control during descent and fell into water. It should be noted that I have not classified all reportable accidents as class A but that these class A incidents probably indicate significant failures in the IRATA system. The incidence of these events is therefore those which should be of concern to IRATA members and executive.

Table 5 shows the distribution of work carried out by companies outside Great Britain (i.e. the UK and the Republic of Ireland). Europe and the Balkans includes the Netherlands, Romania, Belgium, Lithuania, Switzerland, Poland and Spain. Central and South America is Brazil as far as companies submitting returns is concerned. The numbers in the brackets are the number of companies in each of these areas which have submitted returns. For instance, during 2006 overseas companies recorded 28 incidents, of which 9 were while working on ropes. The corresponding figures for 2005 were 13 of which 7 were while on ropes.

The incident rates while working on ropes being 1.3 for 2005 and 1.7 for 2006. While both these results are higher than those for IRATA as a whole they are not significantly so and fit comfortably within the range of results created by individual companies.

Conclusions

- The accident returns show an excellent set of results for working in very exposed and frequently hazardous situations. These results compare very favorably with other means of working at height and with the general figures for the whole of industry.

- The results for working on ropes are particularly good and can only be attributed to the effectiveness of the IRATA system and high levels of control both by managers and operatives.
- It is important for IRATA to give detailed consideration to the class A incidents. One of these could result in a very serious incident adversely reflecting on all IRATA members both as far as their clients and their insurers are concerned. I strongly recommend that IRATA carries out a detailed study of such incidents and considers what measures should be taken to ensure that they do not get out of hand.
- It is extremely important that member companies should be strongly encouraged to submit full and detailed incident returns. The credibility of this annual report and therefore of IRATA itself depends on the confidence in this self regulating system.

Malcolm James January 2008.

Accident and incident returns by IRATA companies for the year 2006.

Tables of results.

Table 1. Brief summary of accidents over the seventeen years 1989 - 2006 based on hours worked on ropes.

	No of companies.	Hours on ropes	Dangerous occurrences (D.O's)	None reportable accidents (NRA) on ropes	RIDDOR accidents on ropes	IR for all none RIDDOR incidents working on ropes	IR for RIDDOR accidents.	Total IR all accidents and D.O.s working on ropes
1989	9	267,504	4	8	0	4.49		4.5
1990	12	327,645	4	7	0	3.36		3.3
1991	16	457,928	5	17	0	4.80		4.8
1992	22	537,920	3?	13	1	2.97	0.19	3.16
1993	23	327,000		21	0	6.42		6.42
1994	32	348,749	1	11	0	3.44		3.44
1995	32	484,285	8	16	0	5.00		4.95
1996	26	559,035	5	18	2	4.11	0.36	4.47
1997	31	699,688	13	11	9	3.43	1.29	4.72
1998	37	1,006,538	14	23	10	3.68	0.99	4.67
1999	33	803,365	10	29	3	4.85	0.37	5.23
2000	34	887,206	6	21	3	3.04	0.34	3.38
2001	49	999,010	15	25	4	4.00	0.4	4.40
2002	49	1,225,930	10	12	-	1.79		1.79
2003	56	1,634,482	1	9	Nil	0.61		0.61
2004	67	1,457,848	8	22	1	2.06	0.07	2.17
2005	81	2,311,265	9	10	3	0.82	0.13	0.96
2006	91	2,132,141	9	21	1	1.41	0.05	1.45
Totals		16,467,537	125	294	37	2.54	0.22	2.77

Note: Incident rates are based on 100,000 hours worked.

Note: The number of companies submitting returns for each year given above will not be the same as the number of companies members of the association for the relevant years.

Note: RIDDOR accidents are those that are required to be reported under the Reporting of Incidents, Diseases and Dangerous Occurrences Regulations (part of the U.K. Safety legislation) and are generally those accidents that at least result in a minimum of 3 days absence from work or are specified dangerous occurrences.

Table 2.a. Summary of the hours worked and incidents suffered during 2006 according to the size of the company.

	Hours worked on ropes	Other hours worked on rope access sites	All incidents						Total incidents on ropes	Total incidents off ropes	Total incidents o/a	Total IR for all causes when working on ropes.
			Incidents on ropes			Incidents off ropes						
			NRA & other	DO	Reportable accidents	NRA & other	DO	Reportable accidents				
Very large companies (4)	765,022	693,178	10	2	Nil	23	Nil	Nil	12	23	35	1.57
Large companies (32)	1,146,374	872,598	8	6	1	23	9	2	15	36	51	1.31
Small companies (35)	211,779	51,300	2	1	Nil	10	1	5	3	13	16	1.42
Very small companies (20)	8,966	27,255	1	Nil	Nil	2	Nil	Nil	1	2	3	11.15
Total all companies	2,132,141	1,644,331	21	9	1	58	10	7	31	74	105	1.45

Note: Very large companies assumed to do more than 100,000 hours a year on ropes, large companies more than 10,000 hours a year, small companies more than 1,000 hours and very small companies less than 1000 hours.

Table 2.b. Incident rates for all incidents on ropes according to the time of year.

	1st quarter	2 nd quarter	3 rd quarter	4 th quarter
Hours worked on ropes	502,652	507,374	532,456	589,659
Incidents suffered on ropes	7	7	10	7
IR per 100,000 hours worked	1.39	1.38	1.88	1.19

TABLE 3. a. Details of the number of incidents in 2006 and a main responsibility for these.

	Equipment failure	Supervision failure	Operator failure	Other	Reportable accidents			Non Reportable accidents	D.O.'s	Other	Hours lost
					Fatal	Major	Over 3 day's absence				
Incidents on ropes	1	6	21	3	Nil	Nil	1	21	9	Nil	166
Incidents off ropes	4	3	52	14	Nil	1	6	56	11	Nil	1603
Of these incidents to trainees	Nil	Nil	1	2	Nil	Nil	2	1	Nil	Nil	568
Total	5	9	73	17	Nil	1	7	77	20	Nil	1769

Table 3.b Details of how the incidents occurred for the year 2006.

	Fall or slip	Falling object	Collapse or overturn	Caught/struck by tool or materials	Electric shock	Gassing/Asphyxiation	Burn or explosion	Equipment failure	Other including none reportable strains or health	Total
Incidents on ropes	1	4	1	11	Nil	Nil	3	2	8	30
Incident off ropes	7	8	7	32	Nil	2	1	2	15	74
Of these incidents to trainees	Nil	2	Nil	Nil	Nil	Nil	1	Nil	Nil	3
Total	8	12	8	43	Nil	2	4	4	23	104
% on ropes	1%	4%	1%	10%	Nil	Nil	3%	2%	8%	29%
% off ropes	7%	8%	7%	31%	Nil	2%	1%	2%	14%	71%
% of all incidents	8%	12%	8%	41%	Nil	2%	4%	4%	22%	100%

TABLE 3.c. Details of the parts of the body injured for the year 2006.

	Head/ Face	Eyes	Neck/ shoulder	Back	Arm	Hands/ fingers	Chest	Stomach	Leg	Foot/ Ankle/ toes	Other.	Total
Incident s on ropes	1	3	2	1	1	5	1	Nil	6	2	1	23
Incident off ropes	10	7	1	5	5	17	Nil	1	8	13	Nil	67
Of these incident s to trainees	Nil	Nil	Nil	Nil	Nil	1	Nil	Nil	1	1	Nil	3
Total incident s	11	10	3	6	6	22	1	1	14	15	1	90

Table 3.d. Qualifications of those involved in the accident for the year 2006.

	Accidents				Dangerous occurrences		Other	
	None reportable		Reportable		On rope.	Off rope.	On rope.	Off rope.
	On rope.	Off rope.	On rope.	Off rope.				
Other.	Nil	8	Nil	2	1	4	Nil	Nil
Level 1.	14	26	1	4	3	Nil	Nil	Nil
Level 2.	1	4	1	Nil	4	4	Nil	Nil
Level 3.	5	18	Nil	1	2	2	Nil	Nil
Total	20	56	2	7	10	10	Nil	nil

Note; others include trainees, supervisors and where grade not given.

Table 4. Summary of class A and class B incidents for the year 2006.

		On rope			Off rope			Totals
		Reportable	None reportable	Dangerous occurrences	Reportable	None reportable	Dangerous occurrences	
Class A	Very large companies	Nil	3 (Nil)	3 (1)	Nil	Nil	Nil	6 (1)
	Large companies	Nil (1)	Nil	1 (2)	1(Mj) (Nil)	Nil	6 (1)	8 (4)
	Small companies	Nil	Nil (1)	1 (Nil)	4(Min) (Nil)	2 (Nil)	Nil	7 (1)
	Very small companies	Nil	Nil (1)	Nil	Nil	Nil	Nil	Nil (1)
Class B	Very large companies	Nil	9	Nil	Nil	21	1	31 (5)
	Large companies	1(Min)	8	4	1(Min)	24	6	44 (25)
	Small companies	Nil	2	Nil	1(Min)	5	Nil	8 (12)
	Very small companies	Nil	1	Nil	Nil	2	Nil	3 (Nil)
Totals	Very large companies	Nil	12	3	Nil	21	1	37 (6)
	Large companies	1	8	5	2	24	12	52 (29)
	Small companies	Nil	2	1	5	7	Nil	15 (13)
	Very small companies	Nil	1	Nil	Nil	2	Nil	3 (1)

Table 5. Summary of activities of companies registered outside the UK for the year 2006.

Note; these figures are also included in the overall figures shown in tables 1 to 4 above.

Location	Hours worked		Detail of incidents
	On ropes	Off ropes	
Europe and Balkans (12)	41,130	2,980	
Canada and USA (4)	26,917	6,927	1 DO on rope
South Africa (6)	20,448	4,538	5 minor and 3 NRA all off ropes
Gulf area (1)	190,373	93,378	3 NRA, 2 DO on rope, 2NRA, 1 DO off rope
Singapore and Malaysia (11)	117,127	41,178	1 Major, 1 Minor, 3 NRA, 1DO off rope
Australia and Western Australia (7)	92,758	11,489	1 NRA, 2 DO on rope, 1NRA, 1 DO off rope
Central & South America (7)	31,846	28,927	
Peoples Republic of China (1)	40	nil	
Total (48)	520,639	189,417	28 incidents (9 on ropes)