

WORK & SAFETY ANALYSIS 2024



ABSTRACT

This report presents data submitted by members of the Industrial Rope Access Trade Association (henceforth referred to as IRATA) for the period January 2023 to December 2023.

Recommendations are made relating to:

- accident and incident reporting;
- common themes;
- recent recommendations;
- 'behavioural competence' and 'safety culture';
- 'leading' and 'lagging' indicators;
- 'human failure' and 'human factors';
- data collected.

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Retired. UK Health and Safety Executive (1997 to 2007). Director and Company Secretary, UK Temporary Works Forum (2014 to 2023). Member, BSI Technical Committee, PH/5, Personal Fall Protection (1998 to 2022) and, later, Chair (2008 to 2022).

Awarded Individual Life Membership of IRATA in recognition of service to the association and the rope access industry (2007).

Awarded the Garth Watson Medal by the Institution of Civil Engineers for dedicated and valuable service to temporary works and the civil engineering industry (2023).

“... wherever you are in the rope access industry, go and start a ‘safety conversation’ ...”



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1. INTRODUCTION

This report presents employment data submitted by members of IRATA for the period January 2023 to December 2023¹.

As a condition of membership, employment data is required to be submitted quarterly.

The report continues with accident and incident data submitted for the same period.

In both instances, the data is checked for accuracy and consistency by staff at IRATA head office. Anonymised and aggregated data has been provided for this review. Clarification was provided, where requested. The narrative accident and incident accounts were provided (anonymised).

Incident reporting should take place within 7-days (or immediately after 7-days if an over 7-day injury is involved)².

It is important to note that all data relates to member companies' employees only. It does not cover IRATA-qualified individuals who are not employees of member companies.

IRATA has 16 regions around the world, each overseen by a Regional Advisory Committee (RAC). Some member data is reported under the corresponding RAC.

This report is arranged with figures and tables generally incorporated into the text to which they apply. Points of note are highlighted. Some recommendations are made. Data presented in brackets thus [604] represents data from the previous year, 2022. A Glossary of Terms Used is included at **Appendix I**.

Some discussion and recommendations are included.

1 See Guidance to IRATA Work and Safety Statistics Return, GU-022 v009

2 See Guidance to IRATA Incident Reporting GU-265ENG v003

2. IRATA MEMBERSHIP & EMPLOYMENT STATISTICS

2.1 MEMBERSHIP

The number of members at Q4 2023 was 708 [604], see **Figure 1**. This is an increase of 17.2% over the last year and 37.2% over the last 5 years.

Returns are requested from members on a quarterly basis. If membership is terminated, any work and safety return(s) may not have been submitted.

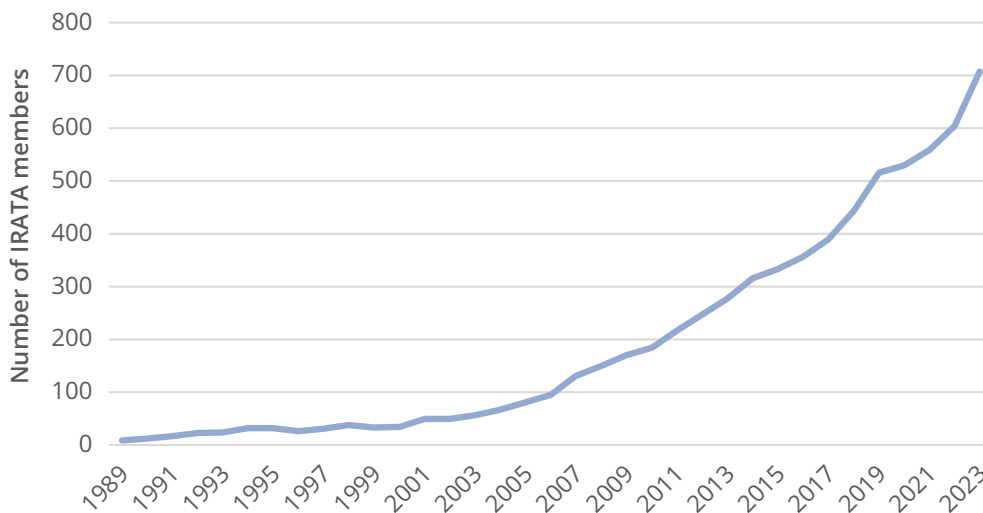
“Plan–Do–Check–Act (PDCA)”

Attributed: W. Edwards Deming

Q4 Hours Data	Members	
Data submitted on time	654 (92.4%)	708
Data not submitted on time	54 (7.6%)	
Comprising:		
Associate members (not required to submit data)	29	
Late data (received subsequently)	20	
New members (no data to submit)	2	
No data received	3	
Total	54	

NOTE: For annual data, see Table 25.

Figure 1 : IRATA membership numbers at Q4 2023



Of the 679 reporting members³ 88 companies reported an accident or incident.

3 Excludes associate members.

2.2 EMPLOYMENT

The distribution of employment between grades is shown in **Table 1** and **Figure 2**.

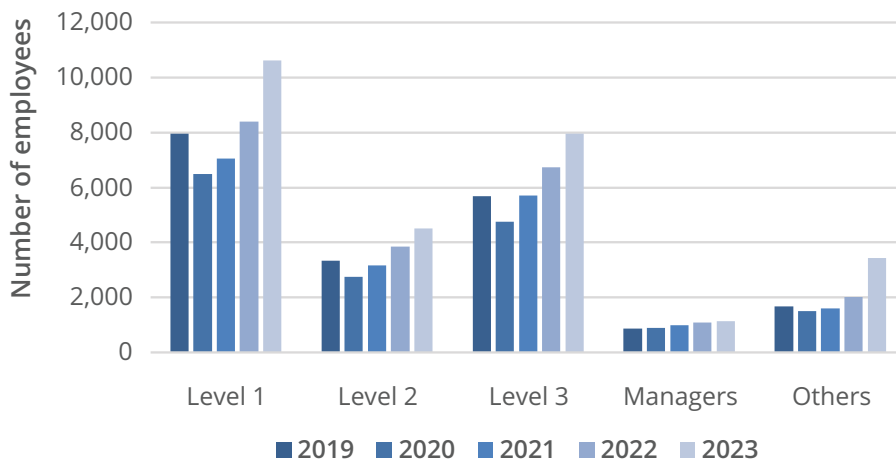
Table 1 : Employment by grade

Year	Level 1	Level 2	Level 3	Managers	Others	Totals
2019	7,965	3,326	5,684	865	1,687	19,527
2020	6,478	2,761	4,745	903	1,501	16,388
2021	7,062	3,159	5,709	984	1,611	18,525
2022	8,389	3,842	6,741	1,083	2,021	22,076
2023	10,629	4,503	7,964	1,134	3,439	27,669

Total employment in 2023 was 27,669 [22,076]. This is an increase of 25.3% over the last year and 41.7% over the last 5 years.

Notable is the 26.7% increase in Level 1s from 2022 to 2023 - 10,629 [8,389]

Figure 2 : Distribution of employment between grades



NOTE: This data is collected from the quarterly returns (as opposed to accident and incident reporting)

2.3 REPORTED HOURS WORKED

The distribution of reported work hours by grade is shown in **Table 2** and **Figure 3**. The total hours worked in 2023 is 32,795,726 [25,501,640], this is an increase

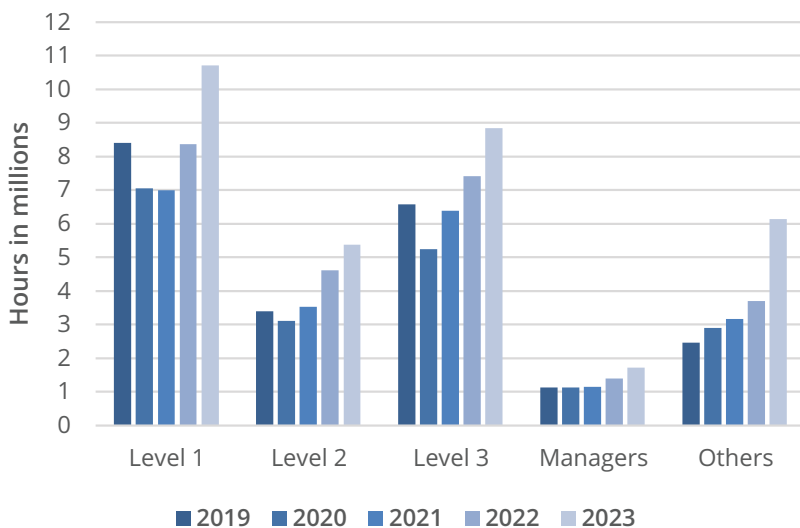
of 28.6% from 2022, and 49.2% increase over the last 5 years.

Table 2 : Reported work hours by grade

Year	Level 1	Level 2	Level 3	Managers	Others	Totals
2019	8,409,427	3,397,524	6,582,043	1,123,859	2,460,909	21,973,762
2020	7,053,087	3,103,833	5,243,305	1,118,342	2,893,652	19,412,219
2021	6,990,924	3,522,853	6,389,974	1,139,582	3,173,943	21,217,276
2022	8,375,176	4,618,926	7,419,162	1,394,655	3,693,721	25,501,640
2023	10,720,925	5,368,807	8,851,467	1,713,932	6,140,595	32,795,726

Notable is the in-year increase in 'Others' at 66.2% and Level 1s at 28.0%.

Figure 3 : Distribution of reported work hours by grade



Assuming 2,000 hours per worker per annum, the utilisation is well below 'Full-Time Equivalent' (FTE), see **Table 3**. This ratio has been consistent over recent years:

Table 3 : Utilisation ratio by grade

Year	Managers	Level 3	Level 2	Level 1	Others	Overall
2023	0.76	0.56	0.60	0.50	0.89	0.59
2022	0.64	0.55	0.60	0.50	0.91	0.58
2021	0.58	0.56	0.56	0.49	0.99	0.57
2020	0.62	0.55	0.56	0.54	0.96	0.59
2019	0.65	0.58	0.51	0.53	0.73	0.56

The FTE workforce is, therefore, 32,795,726 / 2,000 = 16,398 [12,751]. The split between those grades working onshore and offshore is not recorded.

NOTE: Full-time Equivalent (FTE), is a unit of measurement that indicates the workload of an employed person in a way that makes workloads comparable across various contexts

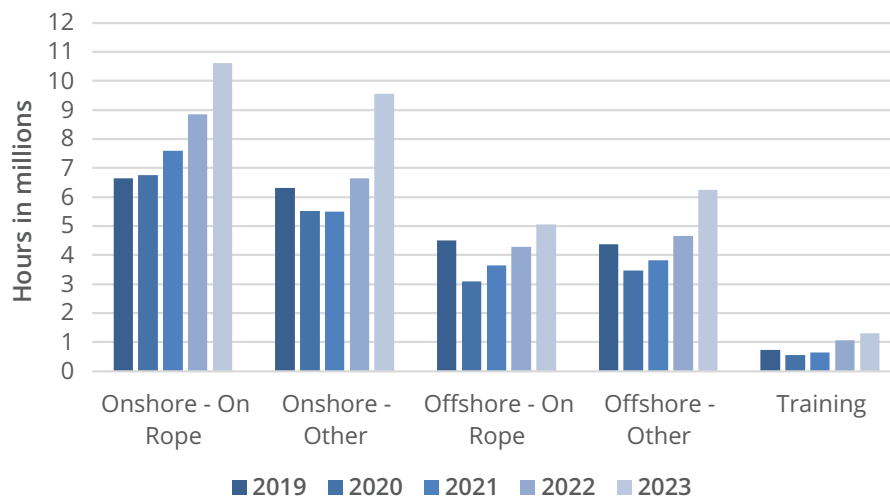
2.4 LOCATION OF HOURS WORKED

The work hours are shown distributed between offshore and onshore working and training, see **Table 4** and **Figure 4**. Excluding 'Training', the ratio of onshore to offshore is 0.64 to 0.36.

Table 4 : Location by work hours

Year	Onshore - On Rope	Onshore - Other	Offshore - On Rope	Offshore - Other	Training	Totals
2019	6,641,396	6,310,132	4,510,080	4,376,937	735,416	22,573,961
2020	6,758,002	5,522,746	3,087,325	3,475,025	569,122	19,412,219
2021	7,590,785	5,504,590	3,651,158	3,819,428	651,313	21,217,274
2022	8,855,725	6,637,526	4,295,185	4,650,655	1,062,549	25,501,640
2023	10,618,891	9,560,906	5,049,804	6,259,930	1,306,195	32,795,726

Figure 4 : Location of hours worked



2.5 TRAINING

The number of training hours by RAC is 1,306,195⁴ [1,062,549], see **Figure 5** (and **Appendix II**). This is an increase of 22.9% over the last year and 77.6% increase over the last 5 years, presumably reflecting a post-pandemic recovery.

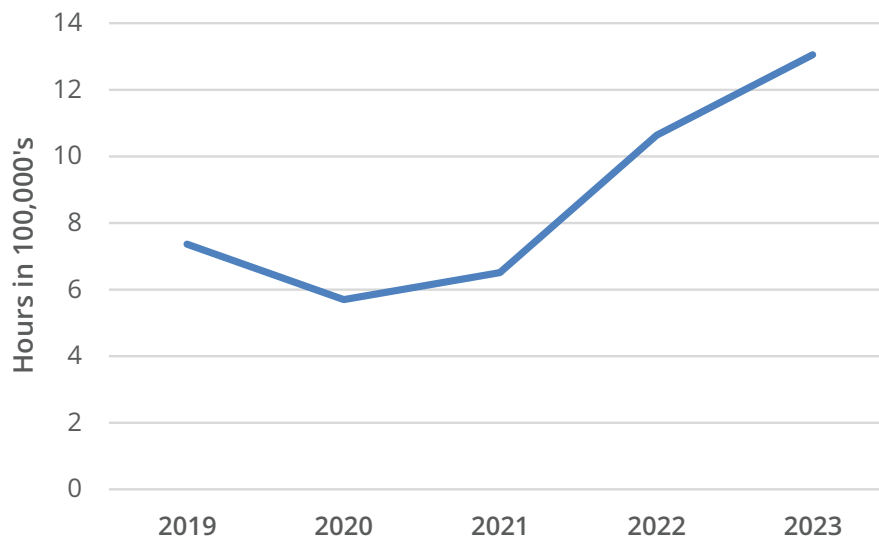
Of note are the following increases (2022 to 2023):

Australasia	37.9%	From 42,054 in 2022 to 58,013 in 2023
Mediterranean	214.3%	From 36,671 in 2022 to 115,239 in 2023
MECASA	44.4%	From 157,146 in 2022 to 226,997 in 2023
Scandinavia	247.1%	From 4,448 in 2022 to 15,437 in 2023
United Kingdom	60.8%	From 162,820 to 261,890 in 2022

Notable decreases are:

D-A-CH	79.8%	From 2,719 in 2022 to 549 in 2023
North Sea Operators	57.1%	From 65,682 in 2022 to 28,170 in 2023
Others	60.5%	From 3,683 in 2022 to 1,455 in 2023
South Africa	26.1%	From 28,892 in 2022 to 21,364 in 2023
United Kingdom	60.8%	From 162,820 to 261,890 in 2022

Figure 5 : Training hours by year



⁴ As a cross-check, the number of candidates (at all levels) was 48,502 in 2023. Assuming each candidate at 40 hours, then the total number of hours is 48,501 x 40 = 1,940,040 hours. The number of hours reported is therefore an under-estimate

3. ACCIDENT AND INCIDENT STATISTICS

NOTE: There is variation in the legislative requirements for reporting accident data worldwide. See **Appendix I** for an explanation of the terms used by IRATA for 'Fatality' and 'Major' injury ('Serious') as well as 'Over 7-day' Injury, 'Less than 7-day' injury, 'Incident' and 'Near Miss'.

3.1 INTRODUCTION

A total of 355 [321] reports were received, see **Table 5**:

Table 5 : Accident and Incident reports received (Form 021)

Year	Total number	Members	Reports per member
2023	356	679	0.52
2022	321	604	0.53
2021	265	558	0.47
2020	260	530	0.49

This equates to just 0.51 reports per member per year. This ratio has been broadly consistent over recent years and is considered low.

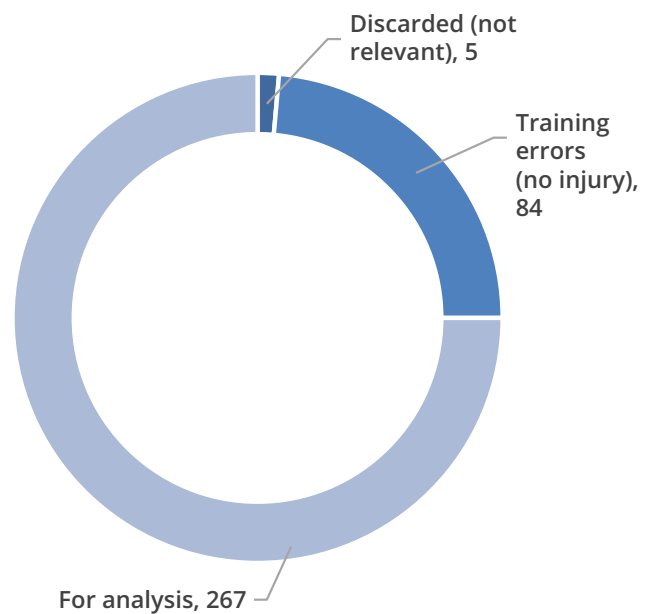
The following reports were set to one side:

- those considered as not relevant, e.g.:
 - Working near another rope access contractor's crew. A concern was raised about the use of no rope protection when rigging ropes through grating.
 - When disembarking the bus to the work front a gust of wind blew dust into the technician's eye.
 - Smoke from wildfires affected the air quality.
 - A team member became visibly unwell (die of natural causes).
 - Assisting the client with a non-rope access task.
- 'training' errors where there is no injury.

In summary (see **Figure 6**):

- Total number of reported incidents **356**
- Not relevant **5**
- Training 'errors' with no injury **84** See **Para. 3.11**
- Remainder for analysis **267**

Figure 6 : Breakdown of reports submitted



Of the 267 accidents and incidents analysed, 124 reports were linked to 7 companies (46.4%). These 7 companies account for 4.78% of all hours worked but report 46.4% of all incidents. Whether this is typical of a long-term trend is not known.

3.2 DISTRIBUTION OF ACCIDENT AND INCIDENT REPORTS

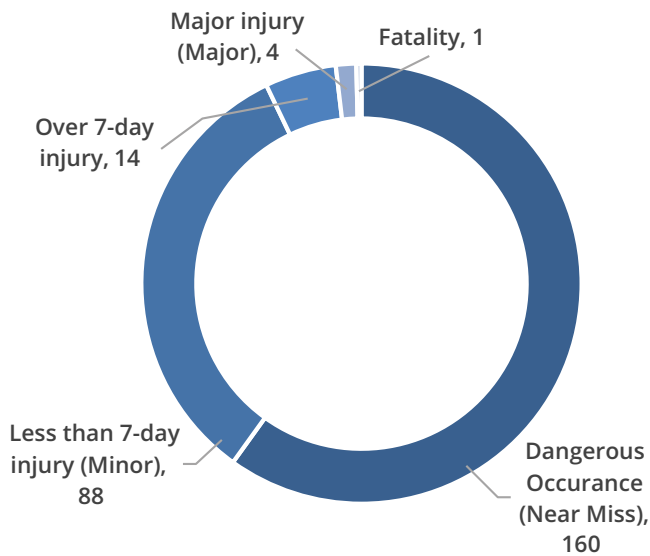
The distribution of accident and incident reports is shown in **Table 6** and **Figure 7**.

Table 6 : Incidents reported by status

Status	All incidents	On Rope	
Dangerous Occurrence ('Near miss')	160	100	
Less than 7-day injury ('Minor')	88	48	
Over 7-day injury	14	9	
Major injury ('Major')	4	1	
Fatality (see NOTE)	1	1	
Total	267	159	59.6%

NOTE: The investigation into the fatality is ongoing.
 No information is available as a result of legal privilege.
 Notwithstanding this, a surveillance audit has been arranged.
 A second fatality is omitted as death was reported to be the result of natural causes.

Figure 7 : Distribution of accident and incident reports



Notably, 40.4% (108) of reported accidents and incidents are not 'On Rope'.

The number of reported Dangerous Occurrences (more frequently referred to within IRATA as a 'near miss') is considered very low.

Table 7 : Location of reported incident

Location	Number of incidents	Hours per incident
Offshore	44	458,632
Onshore – includes Training	223	56,574
Total	267	Ratio: 8.2 to 1.0

It is noted that for every 1.0 incident reported 'Offshore' there are 8.2 'Onshore'.

When listed by activity, see **Table 8**:

Table 8 : Activity of reported incident

Activity	Number of incidents	Hours per incident
On Rope	159	98,545
Other	83	190,612
Training	25	52,248
Total	267	

For every 1.00 incident reported 'On Rope' there were 1.93 'Other'.

When listed by Regional Advisory Committee (RAC), see **Table 9**:

Table 9 : Accidents and incidents reported by RAC

RAC	Number of Accidents and incidents reported	Hours per reported incident	No. of members NOTE 2
Australasia	51	57,480	54
Benelux	7	85,453	31
Brazil	4	238,103	37
D-A-CH	0	NOTE 1	4
East Europe	0	NOTE 1	43
Far East Asia	1	156,750	19
Mediterranean	5	127,326	34
MECASA	8	1,176,885	83
North America	123	19,462	53
North Sea Operators	14	391,803	59
Others	0	NOTE 1	5
Scandinavia	7	63,957	10
South East Asia	3	590,336	53
Southern Africa	3	330,111	32
Sub-Sahara	0	NOTE 1	27
United Kingdom	41	88,889	110
Total	267	122,830	654

NOTE 1: Undefined (no incidents)

NOTE 2: Based on timely Q4 data (see 2.1)

The variation in the level of reporting between Regional Advisory Committees (RACs) is large. Globally, it is considered likely that different approaches are taken to risk management and improving safety culture⁵. It is considered also that the role of accident and incident reporting is not always appreciated. Some organisations

may doubt the need to share the underlying causes and thus do not learn effectively from failure. However successful an organisation, it is hard to accept that even a 'Near Miss' is never reported. A robust reporting culture is considered essential.

5 Measuring the safety climate in organisations: Reduce injuries and costs through cultural change, https://books.hse.gov.uk/gempdf/Measuring_the_Safety_Climate_in_Organisations.pdf (HSE)

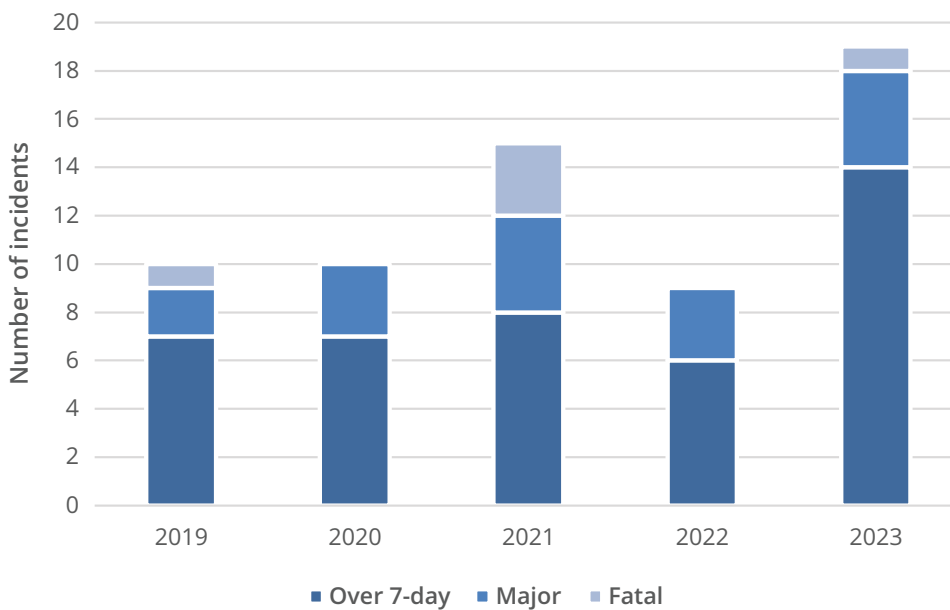
3.3 ACCIDENT AND INCIDENT DATA OVER TIME

The accident and incident data over time for 'Fatal', 'Major' and 'Over 7-day' injuries are shown in **Table 10** and **Figure 8**:

Table 10 : 'Fatal', 'Major' and 'Over 7-day' injuries

Year	Fatal	Major	Over 7-day	Totals
2018	0	1	4	5
2019	1	2	7	10
2020	0	3	7	10
2021	3	4	8	15
2022	0	3	6	9
2023 ⁶	1	4	14	19
Totals	5	17	46	68
6-year average	0.8	2.8	7.7	11.3

Figure 8 : 'Fatal', 'Major' and 'Over 7-day' injuries



The number of reports covering 'Fatal', 'Major' and 'Over 7-day' injuries was 19 in 2023 [9]. Sadly, this figure includes a fatality. The number of 'Over 7-day' injuries was 14 in 2023 [6]. Compared to the in-year total of 19. The 5-year average is 8.4.

6 No 'Serious Incident Briefings' were published in 2023 for members and non-members (www.irata.org). Note: 'Over 7-day' injuries are no longer included (see MP-255ENG, v007)

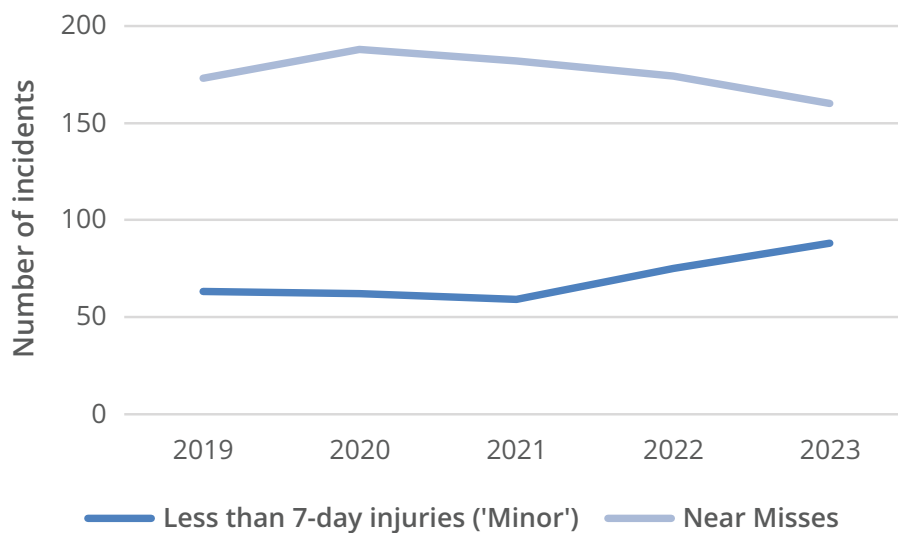
The accident and incident data over time for 'Less than 7-day' ('Minor') and 'Near Misses' is shown in **Table 11** and **Figure 9**:

Table 11 : Less than 7-day injuries ('Minor') and 'Near Misses'

Year	Less than 7-day injuries	Near Miss **	Totals
2019	63	173	236
2020	62	188	250
2021	59	182	241
2022	75	174	249
2023	88	160	248
Totals	347	877	1,224

NOTE: ** Dangerous Occurrence

Figure 9 : Less than 7-day injuries ('Minor') and 'Near Misses'



3.4 SUMMARY OF REPORTED ACCIDENTS AND INCIDENTS IN 2023

In summary, the reported accident and incident data by activity in 2023 is shown in **Table 12**:

Table 12 : Reported accident and incident data by activity

	Fatality	Major	Over 7-day	Less than 7-day	Near Miss
On Rope	1	1	9	48	100
Other	0	3	4	27	49
Training	0	0	1	13	11
Total	1	4	14	88	160

Alternatively, by location, see **Table 13**:

Table 13 : Reported accident and incident data by location

	Fatality	Major	Over 7-day	Less than 7-day	Near Miss
Onshore	0	3	6	60	131
Offshore	1	1	7	16	18
Training	0	0	1	12	11
Total	1	4	14	88	160

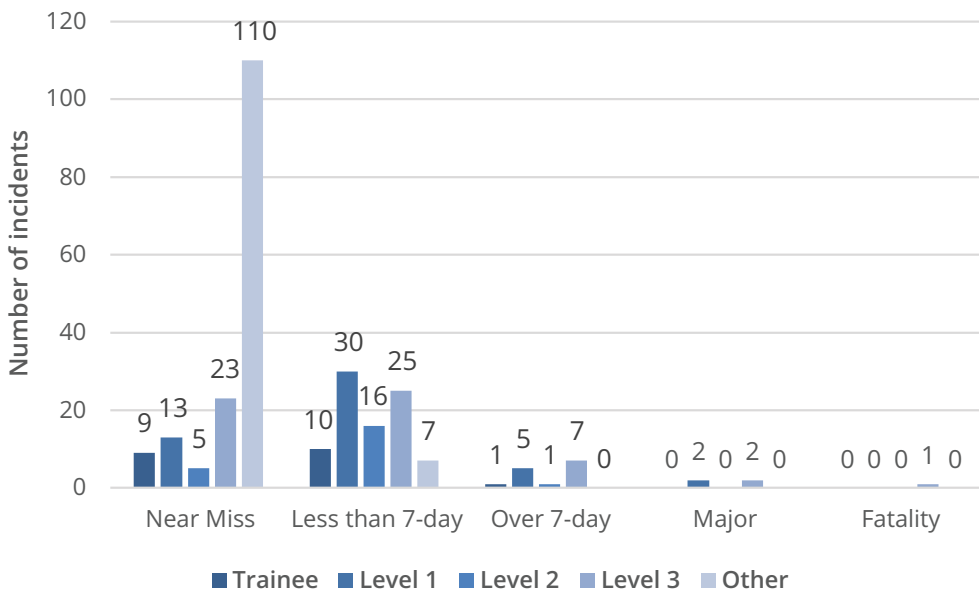
Alternatively, by grade, see **Table 14** and **Figure 10**:

Table 14 : Reported accident and incident data by grade

Grade ⁷	Fatality	Major	Over 7-day	Less than 7-day	Near Miss
Trainee	0	0	1	10	9
Level 1	0	2	5	30	13
Level 2	0	0	1	16	5
Level 3	1	2	7	25	23
Other	0	0	0	7	110
Totals	1	4	14	88	160

NOTE: The grade was not provided in two (2) of the 'Less than 7-day' injury reports.

Figure 10 : Accident and incident data by grade



Many reported 'near misses' are to the grade 'Other' (110, 68.8%). The reason for this is not clear.

⁷ NOTE: This data is collected from the incident reporting (as opposed to the quarterly returns). Hence, the discrepancy between Grades. See Figure 2.

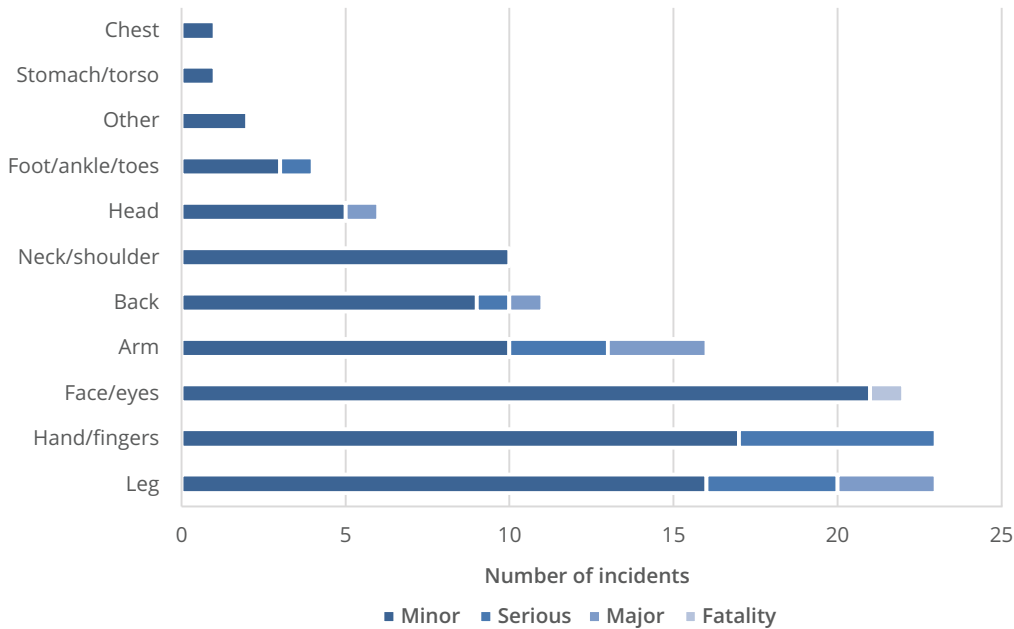
3.5 BODY PARTS INJURED

The number of injuries by body part in 2023 is 119 [94], see **Table 15** and **Figure 11**. This is based on 115 incident reports. The total of injuries is not equal to the number of reports as multiple injury sites are sometimes reported.

Table 15 : Body part injuries

	Leg	Hand / fingers	Face / eyes	Arm	Neck / shoulder	Back	Head	Other	Foot / ankle / toes	Stomach / torso	Chest	Totals
Fatality	0	0	1	0	0	0	0	0	0	0	0	1
Major	3	0	0	3	0	1	1	0	0	0	0	8
Over 7-day	4	6	0	3	0	1	0	0	1	0	0	15
Minor	16	17	21	10	10	9	5	2	3	1	1	95
Totals	23	23	22	16	10	11	6	2	4	1	1	119

Figure 11 : Body part injuries



3.6 IMMEDIATE CAUSE OF ACCIDENTS AND INCIDENTS

See **Table 16**. This review is based on 266 incident reports. Some reports were associated with more than one 'cause'. The largest totals were:

- Operator error or omission (61)
- Falling or dropped object (46)
- Contact with tool(s), material or equipment (50)

Table 16 : Immediate cause of accidents and Incidents

	Operator error or omission	Falling or dropped object	Contact with tool(s), material or equipment	Manual handling	Rope damage	Strains/sprain	Ill health or medical condition	Failure of plant and work equipment	Other	Slip / trip	Fall from a height	Failure of a permit to work system	Failure of electrical, mechanical or other isolation	Rope access equipment malfunction	Rope access equipment failure	Overturn	Explosion	Collapse	Electric shock	Totals	
Fatality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	0	0	0	0	5
Over 7-day	5	1	2	3	0	3	1	0	0	0	1	0	0	1	1	0	0	0	0	0	18
Less than 7-day	12	6	30	11	0	14	4	6	7	6	1	3	1	0	0	0	0	0	0	0	101
Near Miss	44	39	18	7	16	0	9	10	11	3	3	4	5	3	5	1	1	1	1	0	180
Total	61	46	50	21	16	17	14	16	18	10	8	8	6	4	6	1	1	1	0	304	

NOTE: This table is not designed to list the underlying causes. To this end, data is provided on the following factors:

- Management.
- Work environment.
- Plant and/or work equipment.

- Personal protective equipment (PPE).
- Human factors.

These are covered in Paras. 3.6 to 3.10, inclusive. Additional information on non-injurious 'Training' errors is provided in Para. 3.11.

Looking at 'Other' (20) this includes:

- Third-party entering exclusion zone (2)
- Wind weather (10)
- Unidentified equipment (1)
- PPE damaged (1)
- Near miss with support vessel (1)
- Member of public being dangerous (1)
- Wild animal (2)
- No PPE (1)
- Contamination (1)

In turn, 'wind weather' (10) includes:

- Eye injuries from wind blowing particles around the correct PPE (6)
- Wind blowing loose cladding into face (1)
- Wind blowing slag from welding onto a technician (1)
- Change in weather causing ice to fall (1)
- Wind causing a door to slam catching the technician's hand (1)

It is recommended that consideration be given to adding 'Weather' as a cause.

LOW PROBABILITY/HIGH CONSEQUENCE EVENTS

The following causes are low in total number and might therefore be assessed as 'low risk'. However, the consequences of failure are high:

- Rope access equipment malfunction (4)
- Rope access equipment failure (6)
- Failure of a permit to work system (8)
- Rope damage (16)

Focus should remain on these issues, some of which recur year on year.

A qualitative assessment of the descriptions provided by members in their incident reports identifies several areas of note. In respect of these issues at least it is recommended that members review their training and procedures to take the following into consideration:

- Falling or dropped objects
- Ice
- Ill-health
- Musculo-skeletal
- Pipes
- Rope damage
- Wind turbines

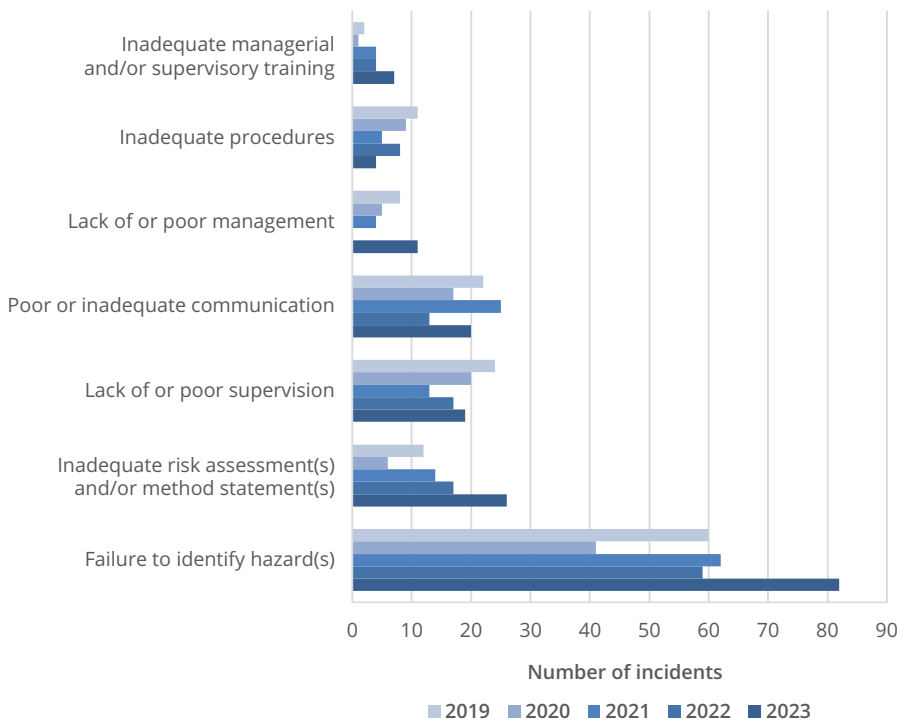
3.7 MANAGEMENT FACTORS

The number of accidents and incidents reported (267) as having 'Management' as an underlying cause is 130, identifying 169 reasons (some reports had multiple reasons). See **Table 17** and **Figure 12**.

Table 17 :
Management factors

Year	Failure to identify hazard(s)	Inadequate risk assessment(s) and/or method statement(s)	Lack of or poor supervision	Poor or inadequate communication	Lack of or poor management	Inadequate procedures	Inadequate managerial and/or supervisory training	Totals	Question not applicable
2023	82	26	19	20	11	4	7	169	137
2022	59	17	17	13	0	8	4	118	
2021	62	14	13	25	4	5	4	127	
2020	41	6	20	17	5	9	1	99	
2019	60	12	24	22	8	11	2	139	
Totals	304	75	93	97	28	37	18	652	
5-Year Average	60.8	15.0	18.6	19.4	5.6	7.4	3.6	130.4	

Figure 12 : Management factors



Recurring themes include:

- failure to identify hazard(s).
- inadequate risk assessment(s) and/or method statement(s).

It is recommended that IRATA review what is included within its ICOP, TACS and (in respect of audit and reporting) Membership Requirements. Also, for training, what feedback (if any) is available as a result of its technician assessments, in particular at Level 3.

Interestingly, 137 reports list 'human factors' as 'not applicable'. This number appears high. It is suggested that there is a greater proportion of underlying management deficiencies.

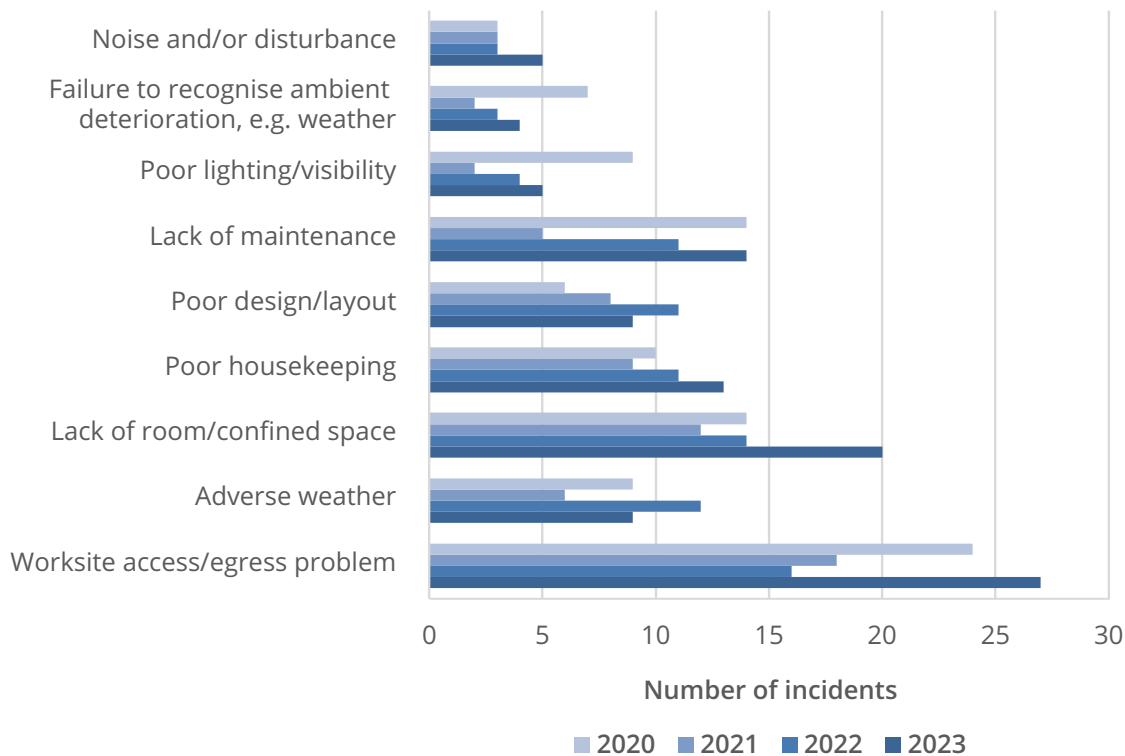
3.8 WORKING ENVIRONMENT

The number of accidents and incidents reported (267) as having 'Working environment' as an underlying cause is 99, identifying 106 reasons (some reports had multiple reasons). See **Table 18** and **Figure 13**. The overall trend is broadly level.

Table 18 : Work environment

Year	Worksite access / egress problem	Adverse weather	Lack of room/confined space	Poor housekeeping	Poor design/layout	Lack of maintenance	Poor lighting / visibility	Failure to recognise ambient deterioration, e.g. weather	Noise and / or disturbance	Totals	Question not applicable
2023	27	9	20	13	9	14	5	4	5	106	168
2022	16	12	14	11	11	11	4	3	3	85	
2021	18	6	12	9	8	5	2	2	3	65	
2020	24	9	14	10	6	14	9	7	3	96	
Average	21.0	8.3	14.5	10.3	8.3	10.3	5.0	4.0	3.5		

Figure 13 : Work environment



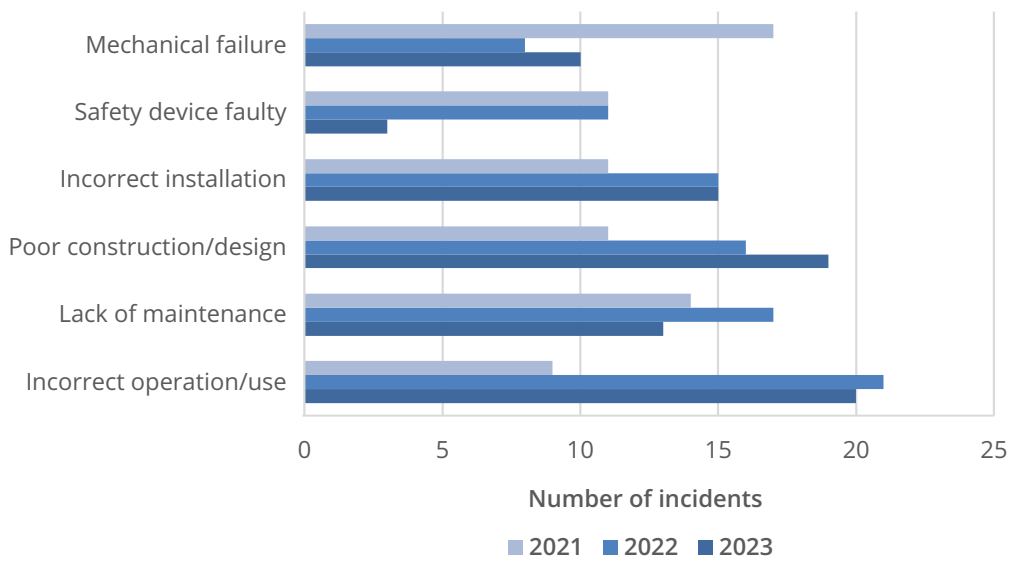
3.9 PLANT AND/OR WORK EQUIPMENT

The number of accidents and incidents reported (267) as having 'Plant and/or work equipment' as an underlying cause is 62, identifying 80 reasons (some reports had multiple reasons). See **Table 19** and **Figure 14**. The overall trend is broadly level.

Table 19 : Plant and/or work equipment

Year	Incorrect operation/ use	Lack of maintenance	Poor construction/design	Incorrect installation	Safety device faulty	Mechanical failure	Totals	Question not applicable
2023	20	13	19	15	3	10	80	205
2022	21	17	16	15	11	8	88	
2021	9	14	11	11	11	17	73	
Average	16.7	14.7	15.3	13.7	8.3	11.7		

Figure 14 : Plant and/or work equipment



3.10 PERSONAL PROTECTIVE EQUIPMENT (PPE)

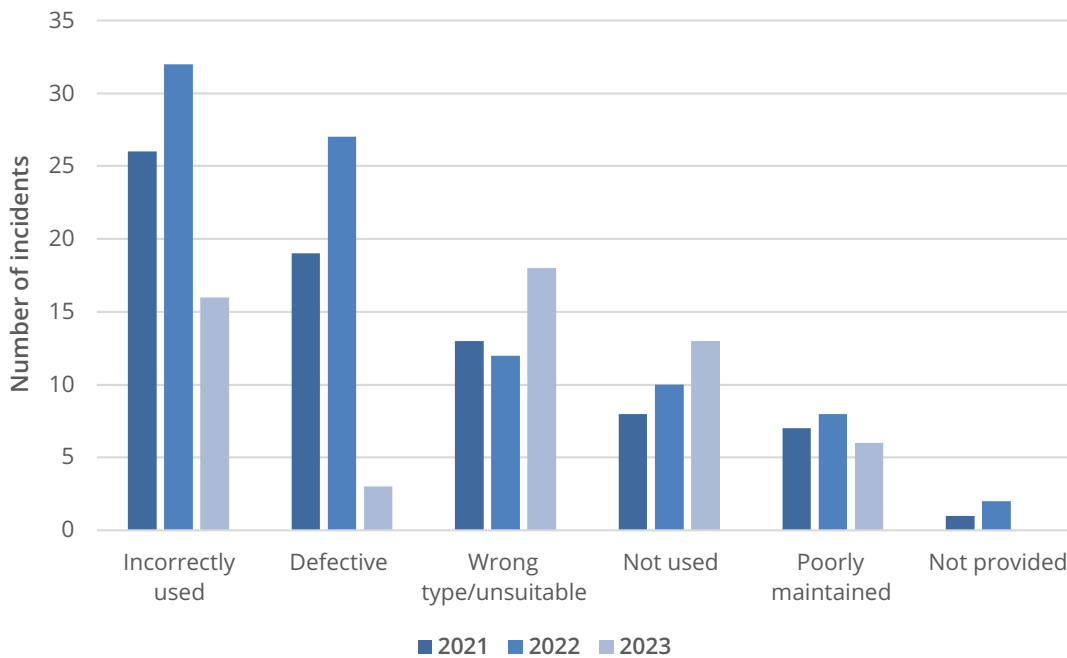
The number of accidents and incidents reported (267) as having 'Personal protective equipment (PPE)' as an underlying cause is 57. See **Table 20** and **Figure 15**.

The overall trend is downwards.

Table 20 : Personal protective equipment (PPE)

Year	Incorrectly used	Defective	Wrong type / unsuitable	Not used	Poorly maintained	Not provided	Totals	Question not applicable
2023	16	3	18	13	6	0	56	210
2022	32	27	12	10	8	2	91	
2021	26	19	13	8	7	1	74	
Average	24.7	16.7	14.3	10.3	7.0	1.0		

Figure 15 : Personal protective equipment (PPE)



There has been a drop in the overall number of occurrences (in particular, 'Incorrectly used' and 'Defective').

3.11 HUMAN FACTORS

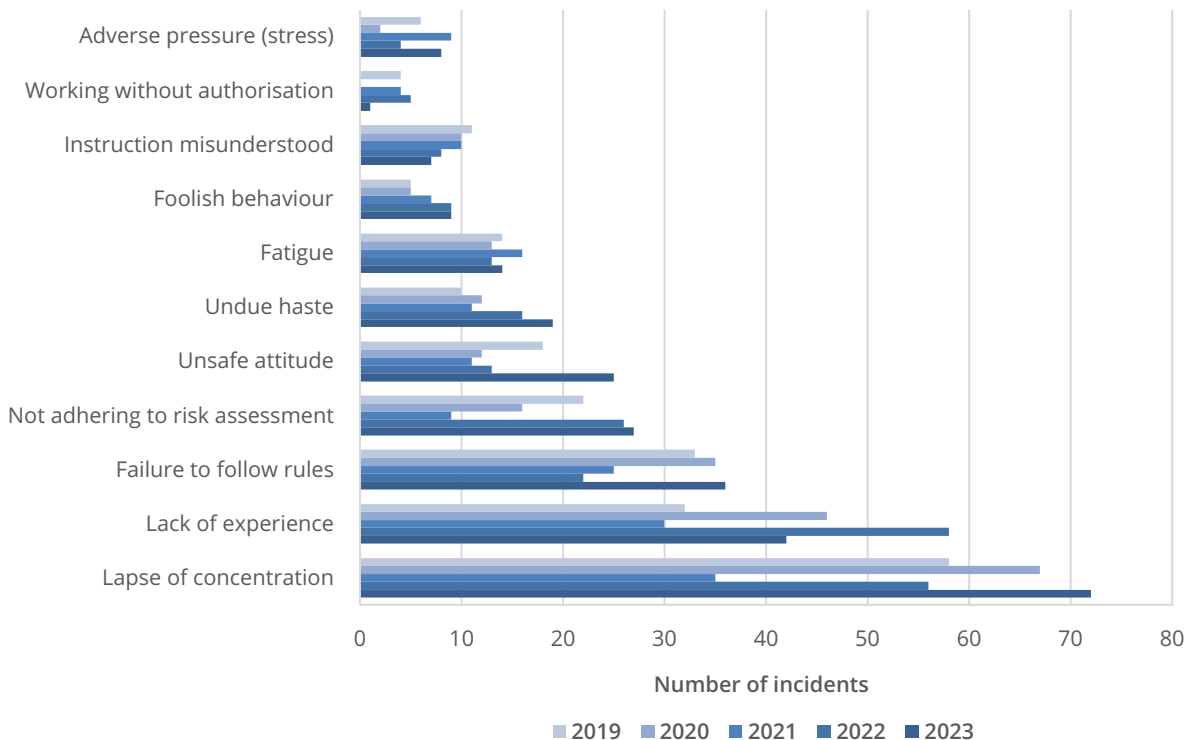
The number of accidents and incidents reported (267) as having 'Human factors' as an underlying cause is 242 identifying 260 reasons (some reports had multiple

reasons). See **Table 21** and **Figure 16**. There has been an increase in 'Lapse of concentration' to 72 [56].

Table 21 : Human factors

Year	Lapse of concentration	Lack of experience	Failure to follow rules	Not adhering to risk assessment	Unsafe attitude	Undue haste	Fatigue	Foolish behaviour	Instruction misunderstood	Working without authorisation	Adverse pressure (stress)	Totals	Question not applicable
2023	72	42	36	27	25	19	14	9	7	1	8	260	25
2022	56	58	22	26	13	16	13	9	8	5	4	230	
2021	35	30	25	9	11	11	16	7	10	4	9	167	
2020	67	46	35	16	12	12	13	5	10	0	2	218	
2019	58	32	33	22	18	10	14	5	11	4	6	213	
5-yr average	57.6	41.6	30.2	20	15.8	13.6	14.0	7.0	9.2	2.8	5.8		

Figure 16 : Human factors



A key consideration in a good safety culture is the existence of a 'just' culture (in lieu of the often-prevailing attitude and culture of 'blame'). Organisations should move from a blame culture to a just culture (and one of accountability). There can be a tendency for managers to blame workers.

This report records a low number of 'management factors' (Para. 3.7) compared to a higher number of 'human factors' (Para. 3.11). What constitutes 'safety culture' is ripe for a discussion amongst IRATA membership as well as what motivates better incident reporting.

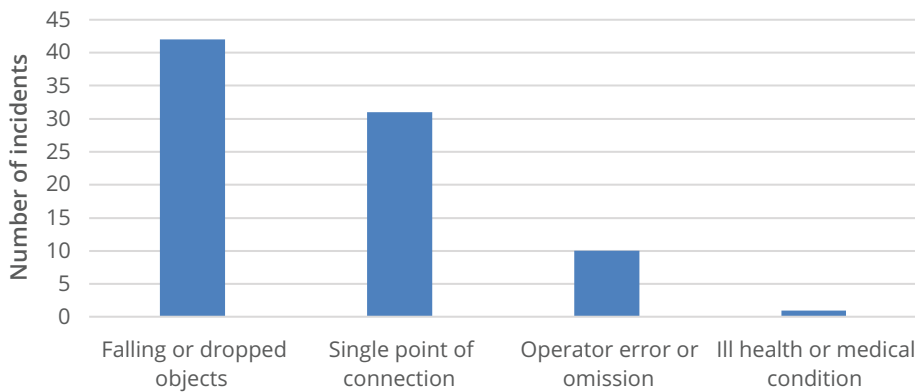
3.12 NON-INJURIOUS TRAINING ERRORS

This category of data was introduced in 2022. See **Table 22** and **Figure 17**.

Table 22 : Non-injurious training errors

Error	2023
Falling or dropped objects	42
Single point of connection	31
Operator error or omission	10
Ill-health or medical condition	1
Total	84

Figure 17 : Non-injurious training errors



A limited number of training companies have submitted reports. There are 300 Trainer Member Companies, for unknown reasons it appears that data is not being collected routinely. Of the 84 reported incidents, 82 are from one member (and their commitment should be applauded), i.e. just 3 companies submitted training incidents. Accordingly, the data is not considered representative of the association as a whole, or of the Trainer Member Companies.

It is suggested that:

- (i) Trainer Member Companies are not aware of the need and/or importance of learning and sharing; and/or
- (ii) the categories need reconsidering (e.g. KPI(s) based on formal Assessment results, for example).

Response from IRATA

This year IRATA has updated their incident reporting procedure and the member incident reporting guidance to clarify the information required from its Trainer Member Companies.

This change clarifies that incidents occurring during IRATA training which would be considered as discrepancies during an assessment, e.g. the categories provided in the table above, would not need to be reported as they are occurring in a safe environment and may be expected to occur during training.

Whereas incidents that do or could result in injury (e.g. a fall from height, uncontrolled swing or ill health) are to be reported.

The incidents that are no longer required to be reported during training are captured during assessment and operational works, enabling IRATA to continue monitoring these occurrences and react appropriately.

4. RISK DATA

“If you can’t explain it simply, you don’t understand it well enough.”

Source: Albert Einstein

A limited amount of ‘risk’ data is presented. It is recommended that benchmarking – against regional datasets – be investigated so that reliable comparisons can be made, e.g. UK and NSO RAC data against published HSE data. In addition, the data collected during the quarterly returns needs to be consistent with that collected after an accident or incident, e.g. grades.

Note: Full-time Equivalent (FTE), is a unit of measurement that indicates the workload of an employed person in a way that makes workloads comparable across various contexts.

4.1 RISK BY ACTIVITY

Taking the accident and incident data by activity (see **Table 12**) and the hours worked (see **Table 4**) the risk by activity is shown in **Table 23**:

Table 23 : Risk by activity (per 100,000 workers, FTE)

	Fatality	Major	Over 7-day	Less than 7-day	Near miss
On Rope	13	13	115	613	1,272
Other	0	38	51	341	619
Training	0	0	153	1,991	1,684

4.2 RISK BY LOCATION

Taking the accident and incident data by location (see **Table 13**) and the hours worked (see **Table 4**) the risk by location is shown in **Table 24**:

Table 24 : Risk by location (per 100,000 workers, FTE)

	Fatality	Major	Over 7-day	Less than 7-day	Near miss
Onshore	0	30	59	595	1,298
Offshore	18	18	124	283	318
Training	0	0	153	1,837	1,684

This data is not benchmarked (and no data showing year-on-year trends has been provided for review).

4.3 ACCIDENT RATE FOR 'ON ROPE'

Table 25 and **Figure 18** show the accident rate for 'On Rope' between 1989 and 2023.

No comparison is made with global data. It is recommended that 'benchmarking' be researched to

determine current good practice. For comparative purposes, perhaps just for the last (say) 5-years, it would be useful to include 'Off Rope' and 'Other'. Thus, giving the often used "Total Recordable Injury Rate" (TRIR) and/or 'Lost Time Injury Rate' (LTIR).Rate (LTIR).

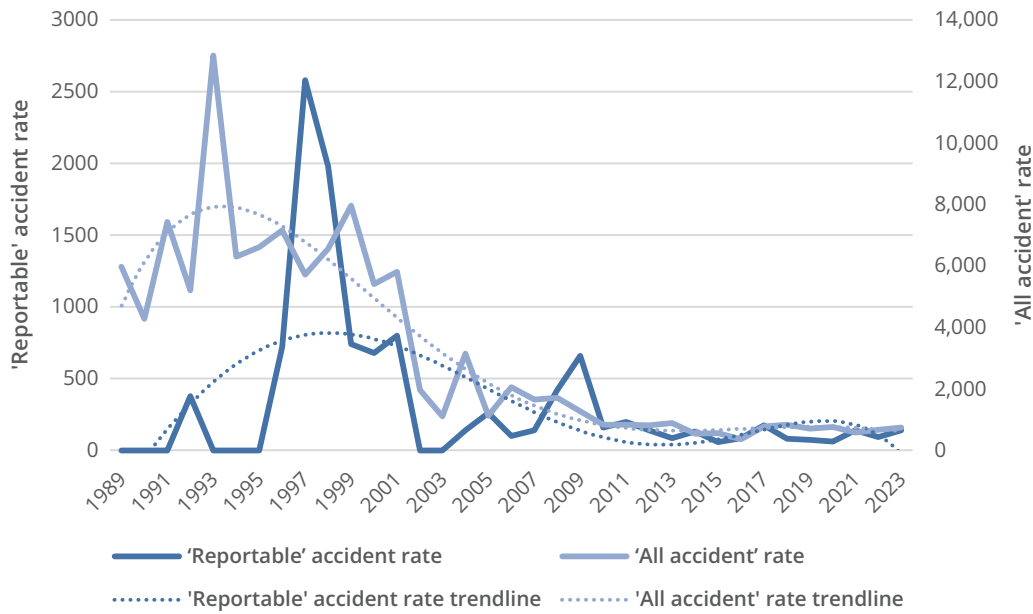
Table 25 : Accident rate for 'On Rope'

Year	No. of Members	Work hours 'On Rope'	Less than 7-day ('Minor')	'Reportable' accidents	'Reportable' accident rate	'All accident' accident rate
					per 100,000 workers (based on a FTE of 2,000 hrs)	
	See NOTE 1			See NOTE 2	See NOTE 3	See NOTE 4
1	2	3	4	5	0	5,981
1989	9	267,504	8	0	0	4,273
1990	12	327,645	7	0	0	7,425
1991	16	457,928	17	0	372	5,205
1992	22	537,920	13	1	0	12,844
1993	23	327,000	21	0	0	6,308
1994	32	348,749	11	0	0	6,608
1995	32	484,285	16	0	716	7,155
1996	26	559,035	18	2	2573	5,717
1997	31	699,688	11	9	1987	6,557
1998	37	1,006,538	23	10	747	7,966
1999	33	803,365	29	3	676	5,410
2000	34	887,206	21	3	801	5,806
2001	49	999,010	25	4	0	1,958
2002	49	1,225,930	12	0	0	1,101
2003	56	1,634,482	9	0	137	3,155
2004	67	1,457,848	22	1	260	1,125
2005	81	2,311,265	10	3	94	2,064
2006	95	2,132,141	21	1	145	1,663
2007	130	2,765,483	21	2	415	1,710
2008	149	3,859,584	25	8	611	1,266
2009	170	4,582,642	15	14	152	839
2010	184	5,247,365	18	4	192	845
2011	217	5,209,056	17	5	141	813
2012	247	5,655,637	19	4	86	884
2013	277	7,012,270	28	3	132	553
2014	315	7,591,977	16	5	59	555
2015	333	10,096,489	25	3	87	368
2016	353	9,232,382	13	4	175	789
2017	389	9,124,565	28	8	82	838
2018	443	9,784,618	37	4	72	717
2019	516	11,151,476	36	4	61	772
2020	530	9,845,327	35	3	142	587
2021	558	11,241,943	25	8	91	669
2022	604	13,150,910	38	6	140	753
2023	708	15,668,695	48	11		
TOTAL		157,687,958	738	133		

NOTES:

1. Includes associate members
2. Comprises: Fatality, Major and Over 7-day injuries
3. Column 5 divided by Column 3 (x 2,000 x 100,000).
Not 'rounded' up/down as in some previous reports.
4. Columns 4 & 5 divided by Column 3 (x 2,000 x100,000).
Not 'rounded' up/down as in some previous reports.

Figure 18 : Accident rate for 'On Rope'



This indicates that both the On Rope 'reportable' rate and the On Rope 'all accident' rate have broadly been on a plateau for several years.

The recent breakdown of 'On Rope' 'Reportable accidents' is as follows (Table 26):

Table 25 : Breakdown of 'Reportable accidents' ('On Rope')

Year	Fatalities	Major	Over 7-day	Total "Reportable accidents"
2013	1	2	1	4
2014	0	0	5	5
2015	1	2	0	3
2016	1	2	1	4
2017	2	1	5	8
2018	0	0	4	4
2019	1	1	2	4
2020	0	0	3	3
2021	2	2	4	8
2022	0	3	3	6
2023	1	1	9	11

5. DISCUSSION AND RECOMMENDATIONS

The following recommendations are made to IRATA International although they apply equally to individual members as much as they do to the collective.

“... bad news is good news ...”

5.1 ACCIDENT AND INCIDENT REPORTING

Of the 267 accidents and incidents analysed, 124 reports (46.4%) were linked to 7 companies. These 7 companies account for just 4.78% of all hours worked. It seems likely that this is due to the lack of reporting by the majority as opposed to poor performance by the few. A learning environment – one in which

members strive to identify, learn and improve – is integral to a sound safety culture. Equally as important is recognising Near Misses and learning from them. For too long, the level of reporting has been poor. A robust reporting culture is considered essential.

Recommendation

No. 1 - Accident and incident reporting

The barriers to accident and incident reporting – and the importance of learning from Near Misses – should be reconsidered and action proposed.

The ‘Near Miss’ reporting categories should be reviewed to ascertain whether better information can be collected, and trends identified.

The reasons for the lack of ‘Near Miss’ reporting in training companies should be discussed.

Response from IRATA

IRATA has released a new incident reporting poster ‘REPORT A PROBLEM. PREVENT A FATALITY’ (<https://irata.org/downloads/23361>). This is part of an ongoing IRATA campaign to promote the importance of incident reporting.

5.2 COMMON THEMES

A review of the six previous WASA Reports (2018 to 2023) shows a number of common themes. In many instances, IRATA has published free advice already to assist members:

- The emphasis required by rope access safety supervisors and Level 3s, as well as those in training establishments, on preventing damaged and severed ropes.

Topic Sheet No. 5, Safe Rigging of Rope Access Equipment, <https://irata.org/downloads/2240>

Topic Sheet No. 6, The Protection of Ropes, <https://irata.org/downloads/2241>

- The prevalence of dropped objects that “...continue to haunt ...” (WASA 2018).

Topic Sheet No. 15, Tool Lanyards, <https://irata.org/downloads/2250>

Topic Sheet No. 3, Avoiding Dropped Back-up Devices, <https://irata.org/downloads/2238>

- Failure to identify, eliminate and/or controls hazards and the need to improve site hazard identification and risk assessment.

Topic Sheet No. 12, Hazard Identification/Risk Assessment, <https://irata.org/downloads/2247>

- The need to encourage members to report not only injuries but, as the reporting rate is very low, near misses.

Topic Sheet No. 27, Near Miss and Under Reporting,
<https://irata.org/downloads/5853>

Topic Sheet No. 23, Accident and Incident Reporting,
<https://irata.org/downloads/4414>

- The importance of equipment pre-use checks, teams being fully briefed, and the need for clear communication between all parties.

Topic Sheet No. 1, Inspection of Equipment,
<https://irata.org/downloads/2236>

- Remaining alert to conditions, e.g. heat and physical effort, that may result in strains/sprains and ill-health (particularly during training).

Topic Sheet No 14, Environmental Conditions,
<https://irata.org/downloads/2249>

Topic Sheet No. 16, Manual Handling and Strain Injuries,
<https://irata.org/downloads/2251>

- The need for technicians to always behave responsibly and sensibly, follow written and oral instructions, and to raise concerns. (This might be summarised as 'behavioural competence'.)

Topic Sheet No. 22, Belief-Based Safety,
<https://irata.org/downloads/4413>

This year, the largest greatest number of immediate causes (**see 3.6**) were:

- Operator error or omission.
- Falling or dropped object.
- Contact with tool(s), material or equipment.

A qualitative assessment of the descriptions provided in the incident reports identifies several areas of note falling or dropped objects; ice; ill-health; musculo-skeletal; pipes; rope damage; wind turbines.

Focus should remain on these issues, some of which recur year on year.

Recommendation

No. 2 - Common themes

The recurring 'common themes' should be revisited and the need (where appropriate) for additional and/or updated guidance identified, prepared, and promulgated.

IRATA should review what is included within its ICOP, TACS and Membership Requirements (in respect of audit and reporting) see 3.7. Also, for training, what feedback (if any) is available as a result of its technician assessments, in particular at Level 3.

Input should be sought from RACs.

Members should review how they utilise available advice on training and briefing their employees.

Response from IRATA

This year IRATA has included the common themes documented through incident reporting in the assessor and instructor workshops. This enables IRATA to review possible changes to the TACS, increases awareness and aims to reduce the occurrence of 'common themes', e.g. dropped objects and rope damage.

5.3 PREVIOUS RECOMMENDATIONS AND OUTCOMES

The previous WASA Report (2023) included the following recommendations:

"...in view of the deleterious effect on statistics of the fatality rate prevailing, it is recommended that all seven fatalities in the last five years be collectively examined to determine if any underlying causes and 'lessons to be learnt' emerge that might not have been revealed by individual case reports..."

Response from IRATA

Lessons learnt from fatalities are published as safety bulletins, serious incident briefings and/or topic sheets when sufficient information is available. Due to the tragic circumstances and legal proceedings that surround fatalities, lessons learnt through the investigations are often not available until after legal proceedings are complete.

"...it is recommended that IRATA members critically examine their working practices and staffing, taking into account...the findings in this report..."

Response from IRATA

IRATA provides information and guidance to its members based on the findings of the WASA Report and may include changes to IRATA's training, assessment and membership requirements where appropriate to do so.

IRATA Members use and share the information provided by the WASA Report and the core committees, to promote and establish safe practices in industrial rope access globally, not just amongst the IRATA Members but throughout the rope access community. Case studies are frequently raised and discussed at IRATA workshops.

"...Modifications and revisions to the accident/ reporting format are required..."

Response from IRATA

In January 2024, based on the work of the Health and Safety Committee and IRATA Head Office, the 'IRATA Incident Report' [FM-021] form and the 'Guidance to IRATA Incident Reporting' [GU-265] document were updated extensively to be more user friendly and provide clearer guidance to members.

These updates have also clarified the requirements to Trainer Member Companies regarding what should be reported during IRATA training.

Recommendation

No. 3 - Register of recommendations

A 'Register of Recommendations' should be established – to which would be added any action(s) adopted – and a periodic progress report submitted to the Executive (board). It is suggested that this commences with the recommendations made in **WASA Report 2023**.

Members should be urged to consider the 'common themes' themselves (and any action(s) taken, as appropriate to their operations, could usefully be checked at internal audit).

5.4 'BEHAVIOURAL COMPETENCE' AND 'SAFETY CULTURE'^{8 9}

An assessment of knowledge, skills and experience – traditionally defined as 'competence' – is fundamental to industrial rope access. Equally important, though, is behavioural competence. This helps to engender a sense of individual responsibility and accountability as part of an effective and strong safety culture.

The key aspects of a positive '**safety culture**' include:

- Management commitment which promotes high levels of concern throughout an organisation.
- Visible management which leads by example, demonstrates engagement, and acts.
- Good communication at all levels, where health and safety is a natural, unprompted consideration.
- Active participation and ownership of health and safety issues, with a common interest and narrative at all levels of the organisation, including visitors.

Important in demonstrating suitable '**behavioural competence**' are:

- Ethical principles, standards and conduct.
- Leadership, teamwork and communication.
- Individual and organisational competence.
- Personal responsibility and accountability.
- Duty of care to others.

Recommendation

No. 4 - 'Behavioural competence' and 'Safety culture'

These two topics should be discussed with members and guidance prepared. Consideration should be given as to how good practice amongst members can be collated and shared. The role and scope of IRATA membership audits (and re-audits) should also be taken into consideration.

8 Source: BSI Flex 8670: v3.0 2021-04 Built environment – Core criteria for building safety in competence frameworks – Code of practice (BSI), <https://knowledge.bsigroup.com/products/built-environment-core-criteria-for-building-safety-in-competence-frameworks-code-of-practice?version=standard>

9 RR367 - A review of the safety culture and safety climate literature for the development of the safety culture inspection toolkit (HSE, 2005), <https://www.hse.gov.uk/research/rrhtm/rr367.htm>

5.5 LEADING AND LAGGING INDICATORS

Accident and incident statistics are, by their nature, 'lagging'. The period that elapses from the time of an event, and any report, to its eventual analysis and the publication of collective data is extended. The opportunity to promulgate lessons learnt promptly is lost. Lagging indicators can be said to be like driving a car looking only in the rear-view mirror.

Some organisations use 'leading' indicators. When used correctly these help organisations shape their future. Examples include manager safety observations, conversations on the shop floor, workplace inspections, training, identifying unsafe acts, sharing safety briefings, toolbox talks, etc. It is important to focus on key indicators and to review them periodically to see whether improvement has then resulted.

Recommendation

No. 5 - Leading and lagging indicators

Dialogue should be commenced to identify the key 'leading' indicators in the context of rope access, and guidance prepared.

It is postulated that the indicators appropriate for operating members are not the same as those for trainer members.



Image courtesy of CAPE INDUSTRIAL SERVICES (SAKHALIN) LLC © 2024

5.6 'HUMAN FAILURE' AND 'HUMAN FACTORS'

Incidents are often attributed to 'human failure' (see **Figure 19**). Useful guidance for those investigating accidents and incidents can be found in Reducing error

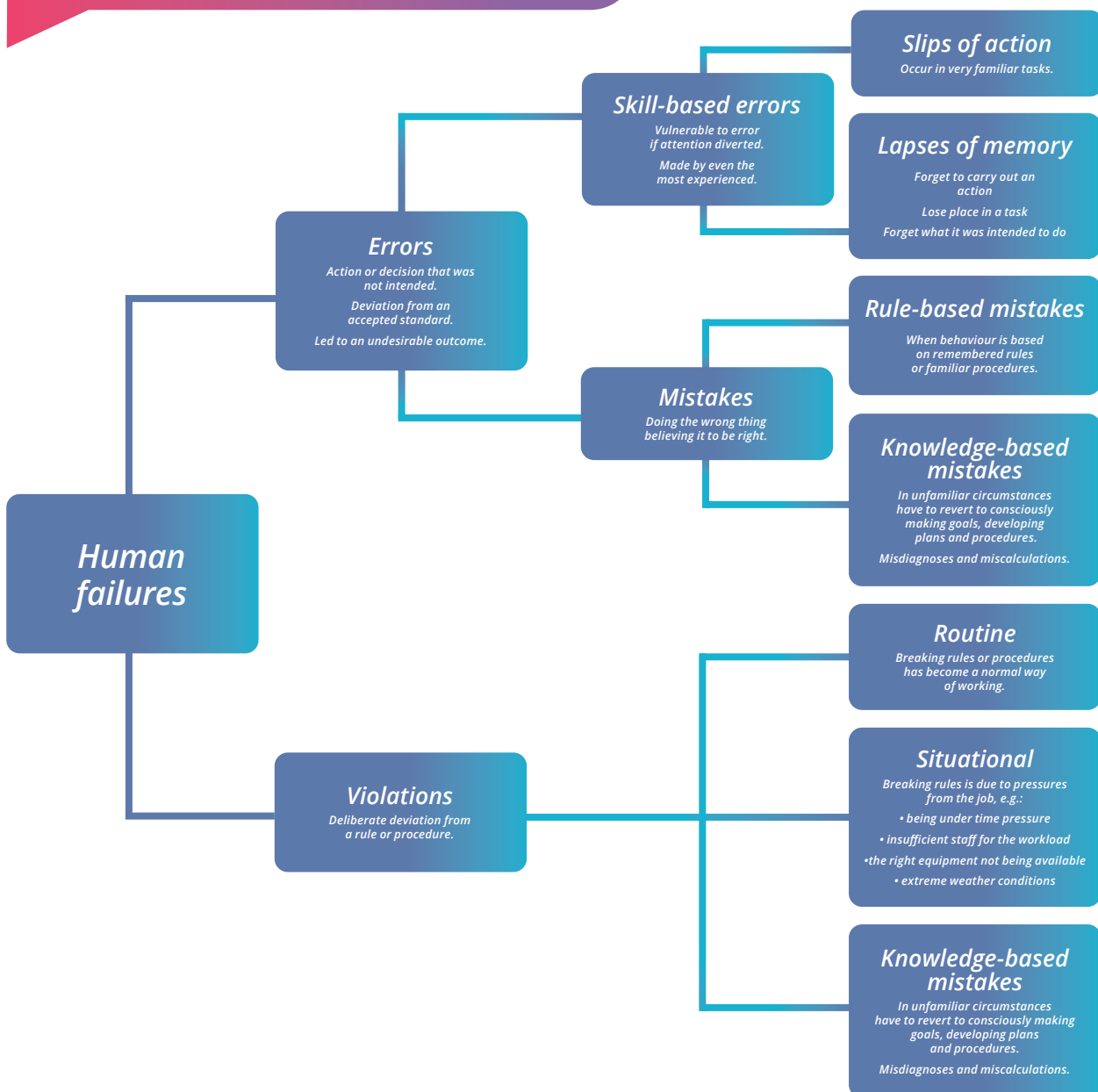
and influencing behaviour, HSG48¹⁰. Investigations frequently fail to get to these underlying root causes.

Recommendation

No. 6 - 'Human failure' and 'Human factors'

It is recommended that these topics be discussed and advice, and perhaps training, prepared for members¹¹.

It is suggested that this might form part of guidance and/or training on 'accident investigation'.



¹⁰ <https://www.hse.gov.uk/pubns/priced/hsg48.pdf>

¹¹ Useful advice is available at <https://www.hse.gov.uk/humanfactors/introduction.htm>

5.7 DATA COLLECTED

Data collection should be the basis for driving improvement and for sharing and learning. It should not be an undue burden. It is useful to review periodically the data categories to determine whether improvement can be made. However, it's also recommended that changes not be made too frequently. This can make year-on-year comparisons more difficult, e.g. trends.

The definitions of a 'Dangerous Occurrence' (which is normally taken to be a reference to certain incidents with a high potential to cause death or serious injury) and a 'near miss' (defined by IRATA as any event or situation where no personal harm or injury occurred but which could have led to injury or fatality) are similar. Is a distinction required to provide focus on smaller events? ('The little things matter'.) Or is a focus on 'high risk' events preferred?

Recommendation

No. 7 - Data collected

The data categories should be periodically reviewed to determine whether improvement can be made.

It is strongly recommended that ways in which year-on-year trends may be extracted be assessed.

It is recommended that benchmarking – against regional datasets – be investigated so that reliable comparisons can be made, e.g. UK and NSO RAC data against published HSE data^{12 13}.

The data collected during the quarterly returns needs to be consistent with that collected after an accident or incident, e.g. grades.

The criteria for excluding accident and incident reports (if any) should be agreed and documented.

Review the definition of 'Dangerous Occurrence' as used by IRATA.

“Plans are nothing;
planning is everything.”

Source: Dwight D. Eisenhower

12 Injury Frequency rates, v1, 06/15 (HSE), <https://www.iso9001help.co.uk/free%20templates/HSE-injury-frequency-rates.pdf>

13 Issues in the measurement and reporting of work health and safety performance: A review, November 2013, Safe Work Australia, [issues-measurement-reporting-whs-performance.pdf \(safeworkaustralia.gov.au\)](https://www.safeworkaustralia.gov.au/issues-measurement-reporting-whs-performance.pdf)

ACKNOWLEDGEMENTS

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

company staff who produce and submit the data required. This report could not have been prepared without their collective efforts.

APPENDIX I

GLOSSARY OF TERMS USED

NOTE: See 'Guidance to IRATA Work and Safety Statistics Return' [GU-022] v009, IRATA Incident Report [FM-021] form v003 and 'Guidance to IRATA Incident Reporting' [GU-265] v003

"It's fine to celebrate success but it is more important to heed the lessons of failure."

Source: Bill Gates

Throughout this report, reference is made to the following categories of work location:

'On Rope'

Arranging, using and directly involved in rope access activity. It also includes access and egress activities to rope access work sites and setting up belays, rigging and de-rigging. Thus, this does not necessarily require a person to be 'roped up' or physically connected to active ropes. It may, for example, include setting up rescue equipment, work equipment (such as welding gear and inspection equipment) at the work site in readiness for immediate deployment on rope.

NOTE: Trainers, even if harnessed and prepared to go 'on rope' should report work hours as 'Other'.

'Other'

Typically includes all other work, both on and off-site, in offices, etc. that is in support of rope access and related activities. For example, equipment inspection prior to removal to work site, logistics, storage, administration and standby duties (e.g. fire watching, surveillance and site security). 'Other' also includes all hours not accounted for by the above category including rope access trainers (unless actively on rope) and all non-rope access training. It **excludes** workers who are not involved in rope access activities.

'Training'

All activities undertaken at rope access training facilities and establishments by trainees, including assessment. This **excludes** all trainers and training staff for rope access training who will be reported under either of the above categories as appropriate. All other unrelated training, induction courses, trial work, specialist courses (e.g. use of breathing apparatus, first aid) are **excluded** and should be reported under '**Other**'.

APPENDIX I

GLOSSARY OF TERMS USED (continued)

For the purposes of this report, the distinction is made between:

'Accident'

An unintended event when personal harm, injury or fatality occurs at work or is caused at work. This includes sprains, strains, illnesses or ill health issues brought on by or made worse by work.

'Near Miss', 'Incident' or 'Dangerous Occurrence'

Any event or situation where no personal harm or injury occurred but which could have led to injury or fatality. Deliberate acts intended to cause harm or injuries are excluded, considered to be criminal act.

NOTE: The terms 'Incident', 'Near miss' and 'Dangerous Occurrence' are synonymous. Identification of the grade(s) of personnel involved is not required.

In dealing with accidents, the following terms are used unless noted otherwise:

'Fatality'

A death within one year (of the incident) as a result of an accident or illness from work.

'Major' injury

Injuries that meet criteria common to most European agencies and other countries.

Typically, 'major' injuries include, for example, broken major bones, any amputation, major dislocation, loss of eyesight and need for resuscitation.

NOTE: There is no 'days lost' element in a 'Major' injury. Thus, even if an injured person returns to work the next day, the nature of the injury might still make it a 'Major'.

'Serious incident'

IRATA-reportable incident resulting in a fatality or major injury and arising from rope access work managed and/or undertaken by an IRATA member company.

Source: Serious Incident Procedure, MP-255ENG

'Over 7-day' injury

In UK reporting, not a 'Major' injury but an injury requiring more than seven days away from normal work irrespective of cause.

'Less than 7-day' injury

The criterion in the UK for a non-reportable accident is now less than 7-days off work (although required to be recorded by duty-holders). If any injury is incurred, no matter how trivial, the minimum reporting level is 'Less than 7-day' injury. In this report, this includes all incidents of 'Ill-health' and 'Sprains/Strains' unless resulting in an 'Over 7-day' injury'.

A 'Less than 7-day' injury is synonymous with 'Minor' injury.

'Ill-health'

A medical condition that leads to interruption or suspension of work due to non-injurious cause, e.g. psychological, heat or cold stress, taken unwell (headache, stomach upset), or other non-trauma medical condition brought on by or made worse by work. Reported as either a 'Over 7-day' or as 'Less than 7-day' injury or, if death occurs within 12 months, a 'Fatality'.

'Sprains/Strains'

Muscular injuries that result in prevention or cessation of work or training. As with 'Ill-health', reported as an 'Over 7-day' injury; otherwise as a 'Less than 7-day' injury. Pre-existing conditions made worse by work, including training, should be included.

'Reportable Accidents'

For comparative purposes, this term is the total of all 'Fatalities', 'Major' injuries' and 'Over 7-day' injuries.

APPENDIX II

SUMMARY OF RAC DATA

Appendix II - Table 1 - Summary of RAC Employment by Grade

RAC	Manager	Level 1	Level 2	Level 3	Other	Totals
Australasia	98	1,068	469	961	85	2,681
Benelux	52	274	109	267	92	794
Brazil	43	1,258	279	534	124	2,238
D-A-CH	6	7	4	16	8	41
East Europe	58	260	142	365	704	1,529
Far East Asia	20	42	38	105	2	207
Mediterranean	45	230	104	204	67	650
MECASA	172	2,442	1,353	1,169	667	5,803
North America	145	934	337	779	467	2,662
North Sea Operators	117	1,831	563	1,481	427	4,419
Others	3	50	8	16	4	81
Scandinavia	15	92	75	167	14	363
South East Asia	66	727	244	467	90	1,594
Southern Africa	64	337	179	291	88	959
Sub Sahara	36	134	137	144	106	557
United Kingdom	194	943	462	998	494	3,091
Totals	1,134	10,629	4,503	7,964	3,439	27,669

APPENDIX II

SUMMARY OF RAC DATA (continued)

Appendix II - Table 2 - Summary of RAC Work Hours by Grade

RAC	Manager	Level 1	Level 2	Level 3	Other	Totals
Australasia	162,009	1,126,673	557,001	1,004,200	81,616	2,931,499
Benelux	52,913	186,876	80,172	209,328	68,882	598,171
Brazil	55,113	349,777	112,365	225,783	209,375	952,413
D-A-CH	4,922	5,388	2,645	15,586	9,768	38,309
East Europe	47,710	213,914	134,744	254,289	2,108,988	2,759,645
Far East Asia	17,473	40,877	34,960	61,650	1,790	156,750
Mediterranean	52,154	168,535	119,285	251,959	44,697	636,630
MECASA	460,400	3,655,671	2,196,422	1,785,843	1,316,742	9,415,078
North America	268,499	887,126	279,189	751,686	207,377	2,393,877
North Sea Operators	157,130	1,888,546	626,488	1,662,207	1,150,877	5,485,248
Others	2,296	7,473	2,938	4,994	2,173	19,874
Scandinavia	14,839	122,258	90,231	216,258	4,114	447,700
South East Asia	74,503	662,578	244,257	633,096	156,573	1,771,007
Southern Africa	43,112	368,765	202,741	312,167	63,549	990,334
Sub Sahara	56,057	106,444	92,348	141,785	158,102	554,736
United Kingdom	244,802	930,024	593,021	1,320,636	555,972	3,644,455
Total	1,713,932	10,720,925	5,368,807	8,851,467	6,140,595	32,795,726

APPENDIX II

SUMMARY OF RAC DATA (continued)

Appendix II - Table 3 - Summary of RAC work hours by location

RAC	Onshore - On Rope	Onshore - Other	Offshore - On Rope	Offshore - Other	Training	Totals
Australasia	1,511,577	790,069	326,713	245,127	58,013	2,931,499
Benelux	296,223	190,532	73,369	26,969	11,078	598,171
Brazil	217,691	254,817	206,715	51,802	221,388	952,413
D-A-CH	16,631	21,129	0	0	549	38,309
East Europe	129,631	1,589,283	159,700	824,098	56,933	2,759,645
Far East Asia	54,838	61,764	13,348	5,435	21,365	156,750
Mediterranean	187,837	173,172	65,128	95,254	115,239	636,630
MECASA	3,887,501	3,135,304	967,604	1,197,672	226,997	9,415,078
North America	1,511,646	677,091	63,244	56,511	85,385	2,393,877
North Sea Operators	724,024	755,056	1,739,395	2,238,603	28,170	5,485,248
Others	8,291	1,850	4,665	3,613	1,455	19,874
Scandinavia	51,917	89,584	94,785	195,977	15,437	447,700
South East Asia	428,704	310,023	394,732	560,445	77,103	1,771,007
Southern Africa	154,238	73,244	352,427	389,061	21,364	990,334
Sub Sahara	52,222	127,574	119,138	151,973	103,829	554,736
United Kingdom	1,385,920	1,310,414	468,841	217,390	261,890	3,644,455
Totals	10,618,891	9,560,906	5,049,804	6,259,930	1,306,195	32,795,726

APPENDIX II

SUMMARY OF RAC DATA (continued)

Appendix II - Table 4 - Training hours by RAC

RAC	2019	2020	2021	2022	2023
Australasia	40,095	46,133	30,627	42,054	58,013
Benelux	7,800	8,530	6,822	9,460	11,078
Brazil	119,711	103,169	145,496	214,658	221,388
D-A-CH	5,423	2,266	2,161	2,719	549
East Europe	58,536	40,065	48,100	54,867	56,933
Far East Asia	Previously included in other RACs			34,637	21,365
Mediterranean	19,984	25,598	30,193	36,671	115,239
MECASA	88,570	41,104	112,015	157,146	226,997
North America	78,107	48,156	62,730	75,636	85,385
North Sea Operators	10,456	9,437	7,626	65,682	28,170
Others	42,807	70,323	30,627	3,683	1,455
Scandinavia	4,315	3,976	3,316	4,448	15,437
South East Asia	94,404	77,706	49,726	81,315	77,103
Southern Africa	12,671	16,732	24,816	28,892	21,364
Sub Sahara	Previously included in other RACs			87,861	103,829
United Kingdom	152,537	75,927	97,058	162,820	261,890
Totals	735,416	569,122	651,313	1,062,549	1,306,195



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