

G9 Offshore wind health and safety association

2014 incident data report



**G9 Offshore Wind
Health & Safety
Association**

www.g9offshorewind.com

About the G9 Offshore wind health and safety association

The primary aim of the G9 is to deliver world class health and safety performance in the offshore wind industry. To achieve this, senior executives of the G9 member companies have committed resources from their companies, and have also met under the auspices of the G9 Board, to actively lead the industry in finding solutions to the safety challenges faced by offshore wind projects throughout their life cycle, from design and development through construction and in operation.

Through the sharing and analysis of HSE incidents provided by G9 member companies, an evidence-based understanding has been developed of the risks encountered during the construction and operational phases of a wind farm project. This information is being used by the G9 to identify the risks in the offshore wind industry, allowing the group's work to be focused in areas of high risk exposure.

The HSE incident data shared amongst the G9 members during 2014 are presented in this report.

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G9 founding members:



Introduction from the Chairman

2014 was a busy year for the G9 Offshore Wind Health & Safety Association (G9), culminating in December with the launch of our publications *Good practice guideline: working at height in the offshore wind industry* and *Good practice guideline: the safe management of small service vessels used in the offshore wind industry*. The publication of these two guidelines, which come out of extensive collaboration across the offshore wind community - developers, suppliers, regulators and others - represents a significant milestone for G9, but it is only the start. If we are to have a real impact on safety in our industry, it is essential that we now work with our colleagues in our own organisations and in the supply chain to see these guidelines implemented, and this will be a big focus area for us in 2015.

This year has begun very much where 2014 left off, and I am delighted to see the publication of the G9 2014 Incident Data Report. The report gives a comprehensive insight into the health and safety performance of the G9 members' offshore wind activities across Northern Europe, and for the first time allows the industry as a whole to evaluate its performance through the publication of benchmark metrics. As a reference for offshore wind health and safety I believe it will continue to be a useful tool for industry to document the evolution and improvements in the sector's performance.

Within the G9, we will continue to strive to improve the health and safety performance of our members with assistance from the Energy Institute (EI) and our many stakeholders from across the sector, not least in the supply chain. As members of G9, it is our responsibility to ensure that the health and safety performance of our companies is continually improving and that this is understood and communicated to the wider industry and regulators.

I hope you find this report useful and informative, and I look forward to our continued work together to make our industry an ever safer one.



Benj Sykes

Chairman – G9 Offshore Wind Health and Safety Association
Head of Asset Management
DONG Energy Wind Power



Overview of 2014 incident data report: sites and method of work

Overview of G9 member sites

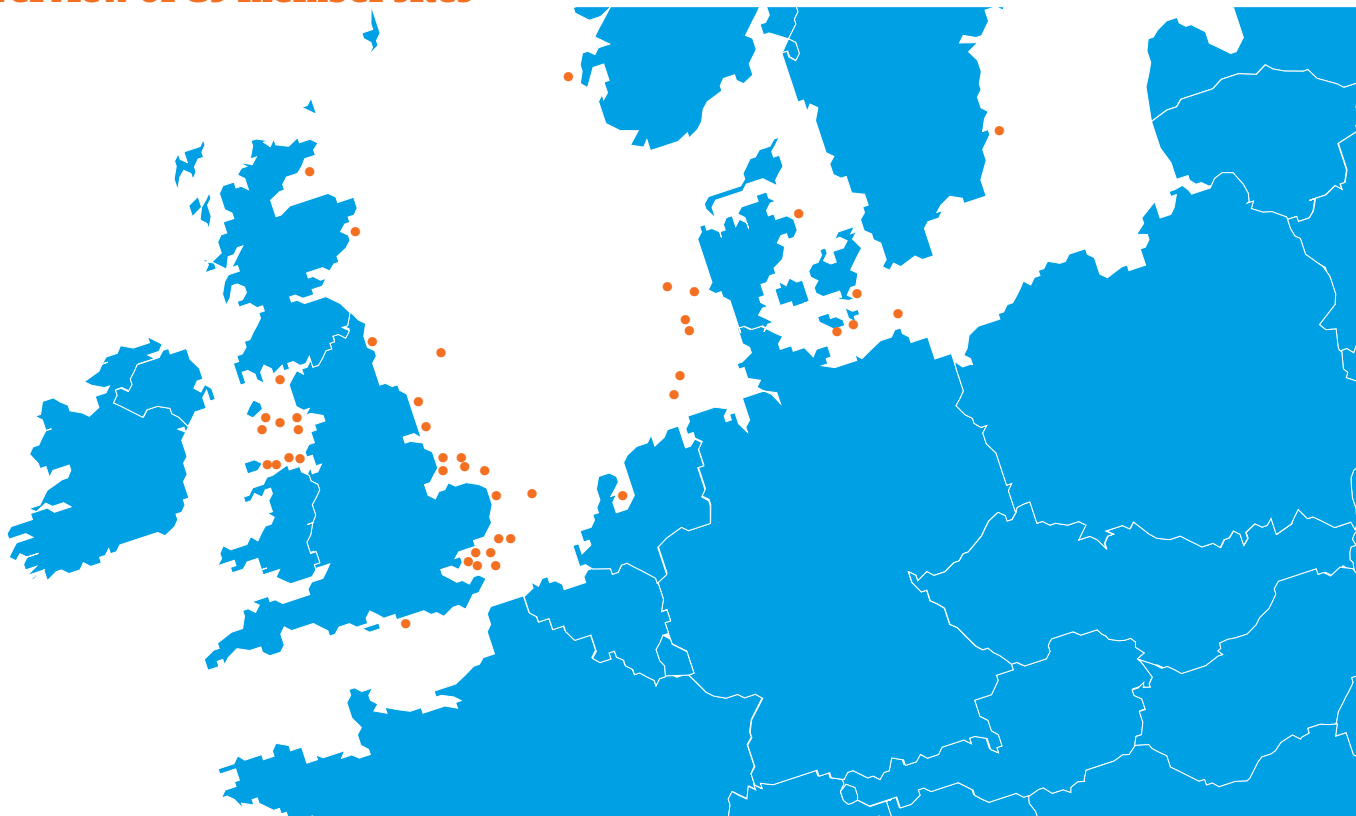


Figure 1: G9 member sites that have provided incident data

Method of work

Throughout 2014, the data from each quarter have been provided by each G9 member and analysed internally by the EI, with a quarterly report produced for review by the G9 Board and G9 Focal Group. As part of the data submissions, only medium and high risk near hits and hazards have been reported (see Figure 2). Data have been collected and categorised into survey, project and operation phases. For further information on the data input categories (work process, incident area, consequence, etc.) see Annexes A and B.

2014 highlights

2014: key facts and figures

Key facts		Work process	
994	reported incidents	237	incidents during marine operations*
0	fatalities	143	lifting operations incidents
44	total lost work days	134	incidents occurred when operating plant and machinery
6	injuries to employees and contractors reported under RIDDOR	Incident area	
661	incidents occurred on operational sites	378	incidents occurred in the turbine region
314	incidents occurred on project sites	325	incidents occurred onshore
15	incidents occurred on survey sites	256	incidents occurred on vessels

* Marine operations comprise the following work processes: maritime operations, transfer by vessel, vessel operations, vessel mobilisation.

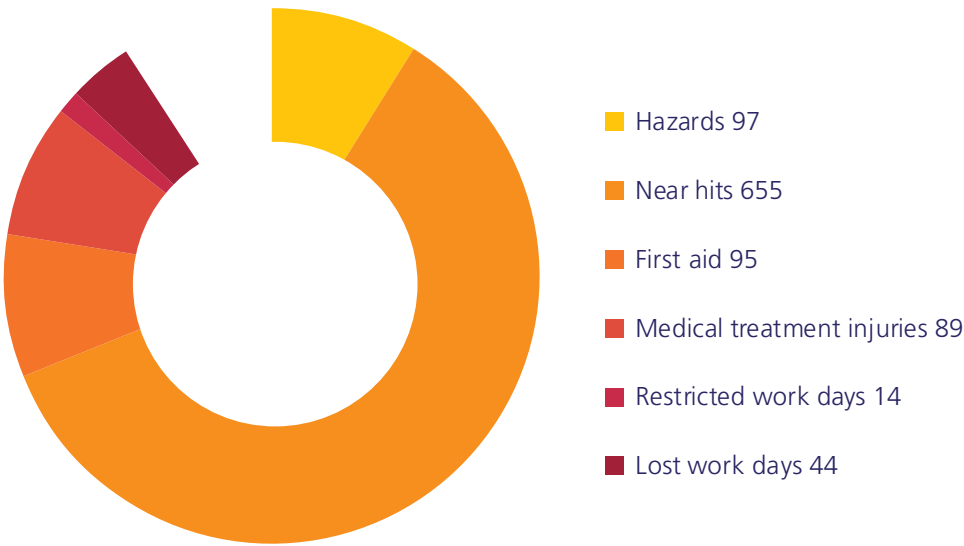


Figure 2: 2014 incident severity summary

Safety statistics for 2014

Hours worked

	2014 (2013)	Relative to 2013
Hours worked*	23 700 000 (23 500 000)	+ 1 %

Total recordable injury rate (TRIR)

The overall TRIR increased by 35 % from 4,61 in 2013 to 6,20 in 2014.

	2014 (2013)	Relative to 2013
Fatalities	0 (0)	No change
Lost work days	44 (66)	- 33 %
Restricted work days	14 (12)	+ 17 %
Medical treatment injuries	89 (30)	+ 197 %
Total	112 (108)	+ 4 %
Total recordable injury rate (TRIR)	6,20 (4,61)	+ 35 %

Total recordable injury rate (TRIR)

The number of recordable injuries (fatalities + lost work day cases + restricted work day cases + medical treatment injury cases) per 1 000 000 hours worked

Lost time injury frequency (LTIF)

The overall LTIF decreased by 34 % from 2,81 in 2013 to 1,86 in 2014.

	2014 (2013)	Relative to 2013
Fatalities	0 (0)	No change
Lost work days	44 (66)	- 33 %
Total	44 (66)	- 33 %
Lost time injury frequency (LTIF)	1,86 (2,81)	- 34 %

Lost time injury frequency (LTIF)

The number of lost time injuries (fatalities + lost work day cases) per 1 000 000 hours worked.

* Hours worked rounded up to nearest 100 000.

Incident data summary – incident area

Areas where incidents occurred can be broadly categorised into five different categories (see Figure 3). Figures 4 – 8 show this breakdown in further detail.

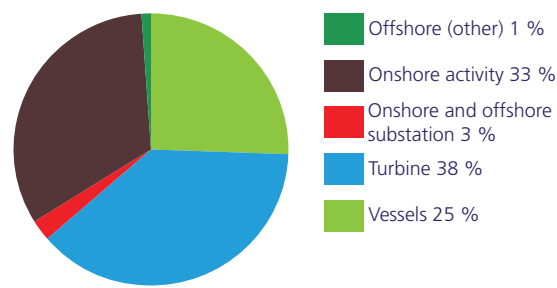


Figure 3: Incident area – summary

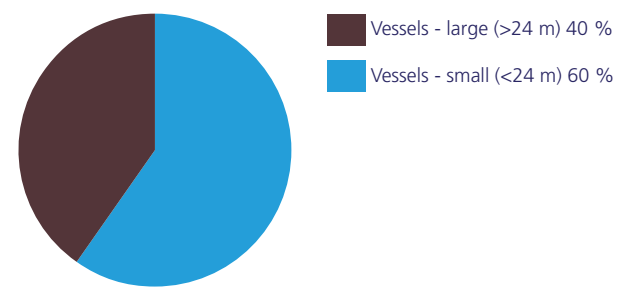


Figure 4: Incident area – vessels breakdown

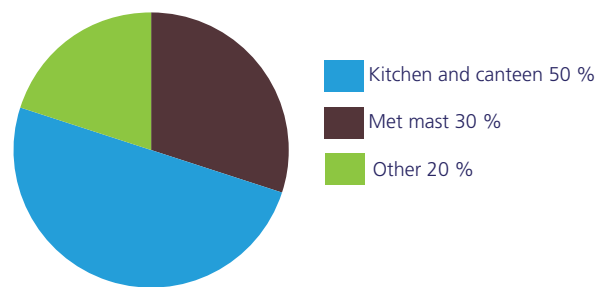


Figure 5: Incident area – offshore (other) breakdown

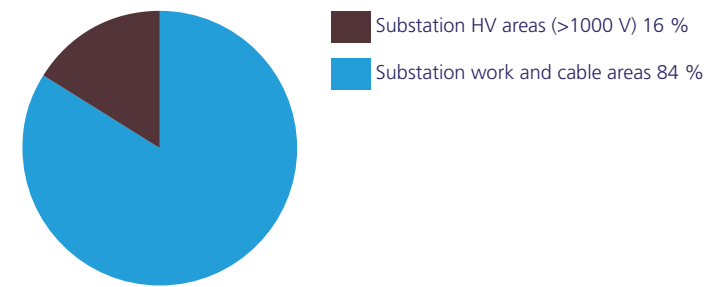


Figure 6: Incident area – onshore and offshore substation breakdown

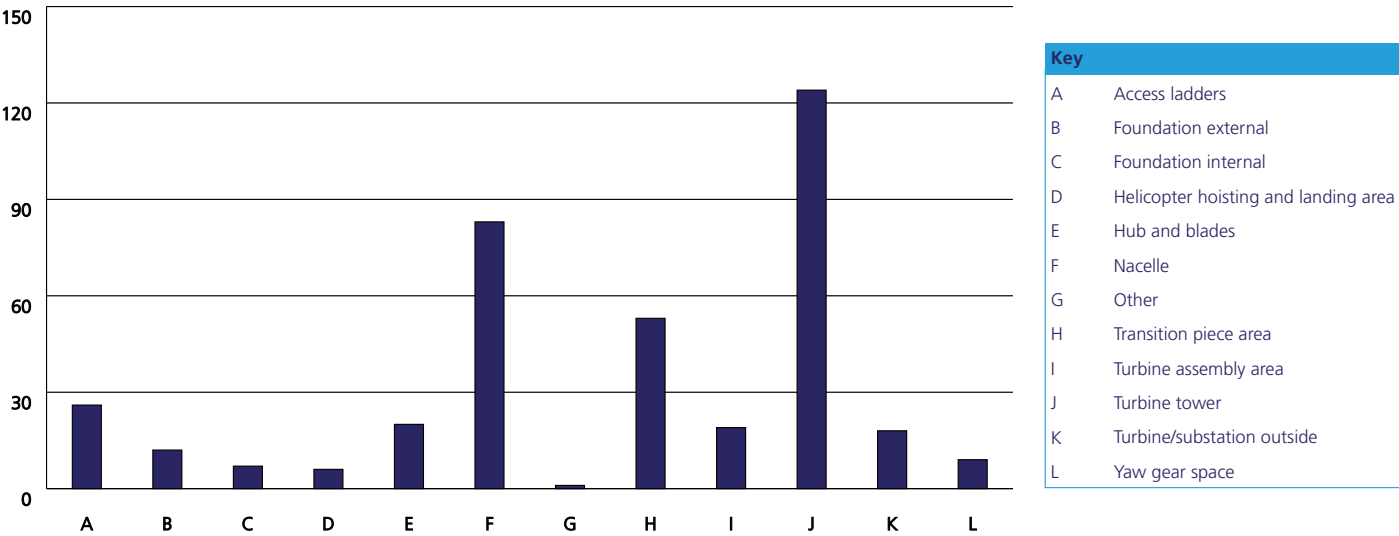


Figure 7: Incident area – turbine breakdown

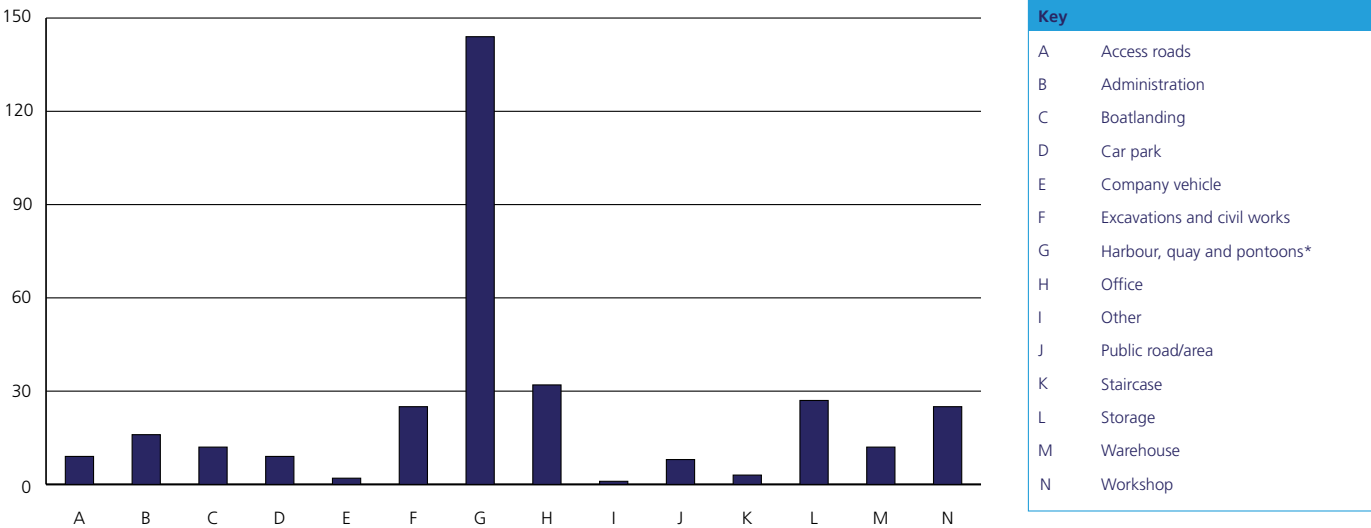
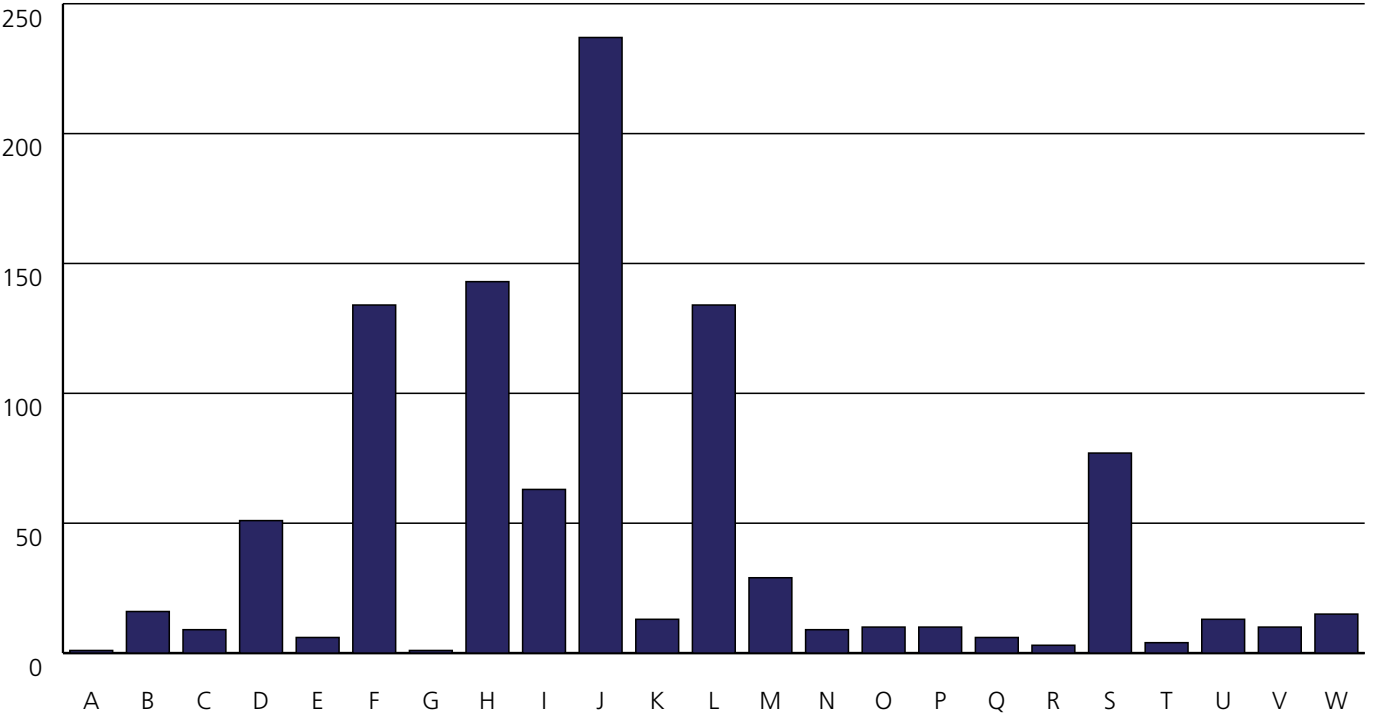


Figure 8: Incident area – onshore activity breakdown

* In 2014, one G9 member reported 100 incidents for the harbour quay and pontoons incident area (for further information on incident consequence see Annex A).

Incident data summary – work process

There were 26 different work processes where incidents occurred during 2014 (see Figure 9). For further information on the number of hazards, near hits, first aid incidents, medical treatment injuries, restricted work day, and lost work day incidents see Annex A.



Key		
A	Asset damage	I Manual handling
B	Business travels	J Marine operations*
C	Catering/cleaning	K Office work
D	Civil works	L Operating plant and machinery
E	Diving operations	M Other
F	Facility management	N Replacing major components
G	Hot works	O Rigging/slinging
H	Lifting operations	P Surveys
		Q Training/drills/team building events
		R Transfer by helicopter
		S Working at heights
		T Working in confined spaces
		U Working on energised systems
		V Working with chemicals and hazardous substances
		W Working with hand tools/power tools

Figure 9: Work process – summary

* Marine operations comprise the following work processes: maritime operations, transfer by vessel, vessel operations, vessel mobilisation.

Project and operation sites

Throughout 2014, incidents were classified as occurring in project, operation, or survey phases – these were defined as:

Project site: All stages of project (development, construction, commissioning).

Operation site: Site in operation producing power.

Survey phase: Development phase of project.

Breakdown of the incident data by site classification is shown in Figures 10 and 11.

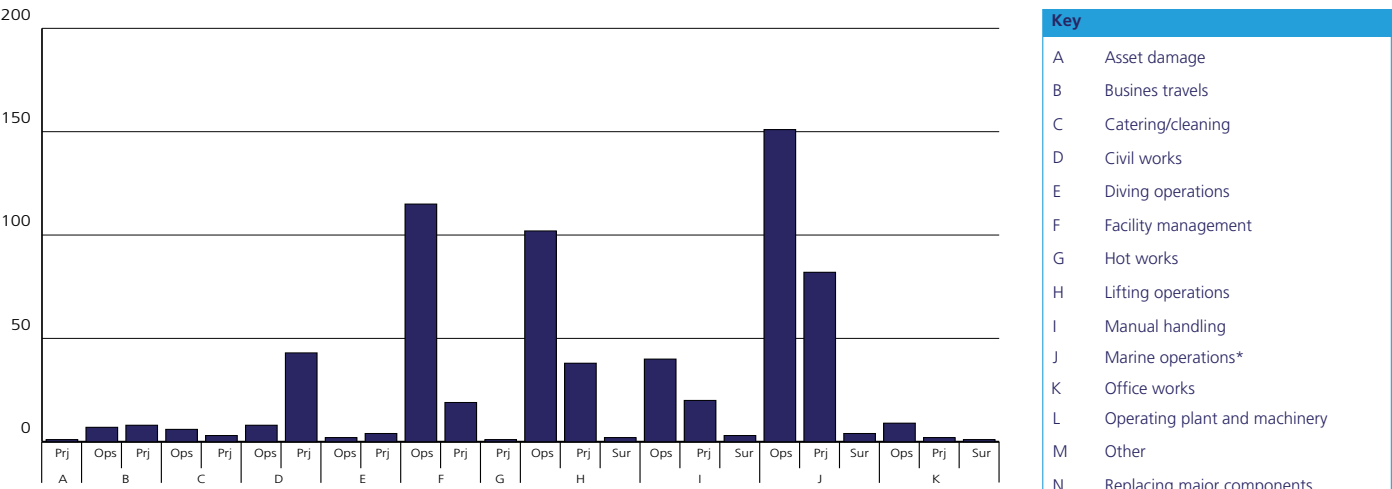


Figure 10: Work process – project/operation site breakdown

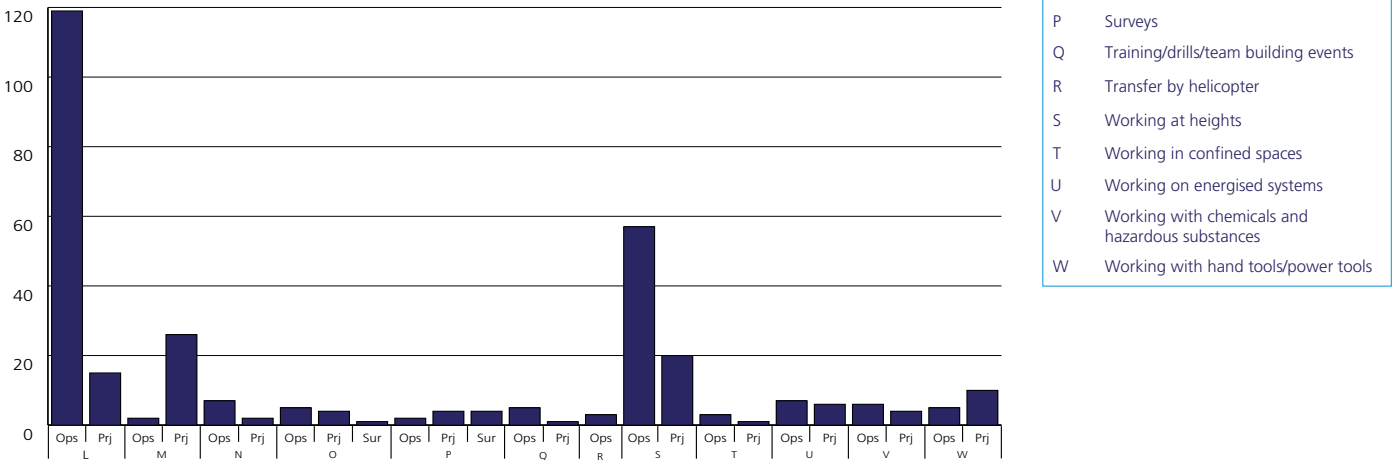


Figure 11: Work process – project/operation site breakdown

* Marine operations comprise the following work processes: maritime operations, transfer by vessel, vessel operations, vessel mobilisation.

Lost work day incidents

Summary – breakdown by incident area and work process

In 2014, there were 44 lost work day incidents reported, including six which were reported under RIDDOR. 41 % (18) of lost work day incidents occurred on turbines and 39 % (17) on vessels. The highest number of lost work day incidents occurred during marine operations (13: 30 %), manual handling (10: 23 %), civil works (5: 11 %) and working at height (3: 7 %). See Figures 12 and 13.

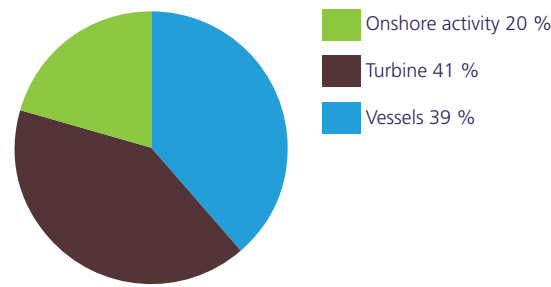


Figure 12: Lost work day – incident area breakdown

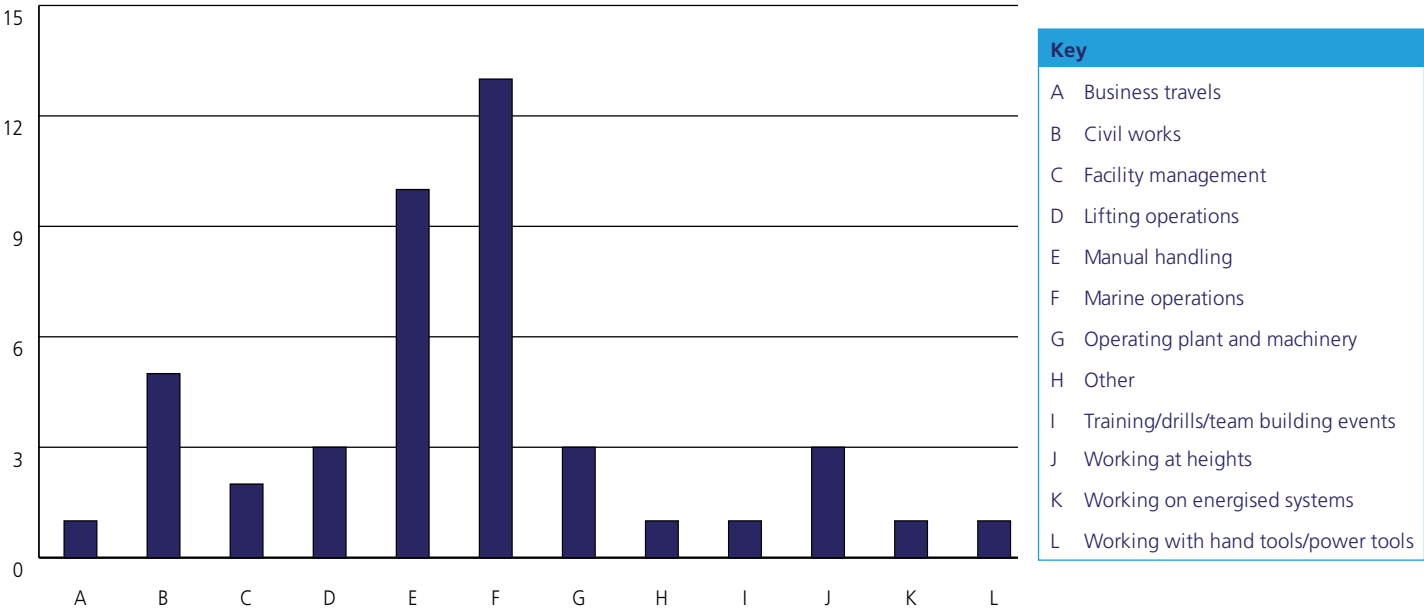


Figure 13: Lost work day – work process breakdown

Top three risk analysis: Marine operations

Summary – breakdown by incident area, consequence and work process

In 2014, the highest number of incidents occurred during marine operations (237), with 151 occurring on operational sites, 82 on project sites and four during the survey phase.

The majority of marine operations incidents occurred on the vessels themselves (167). 43 % of marine operations occurred during transfers by vessel, 31 % during maritime operations and 23 % during vessel operations.

Of the total number of incidents recorded, 62 % were classified as near hits and 15 % as hazards. There was a total of 13 incidents resulting in lost work days (see Figures 14, 15, and 16).

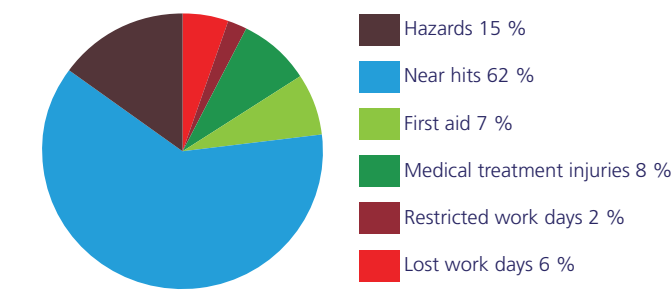


Figure 14: Marine operations – incident consequence

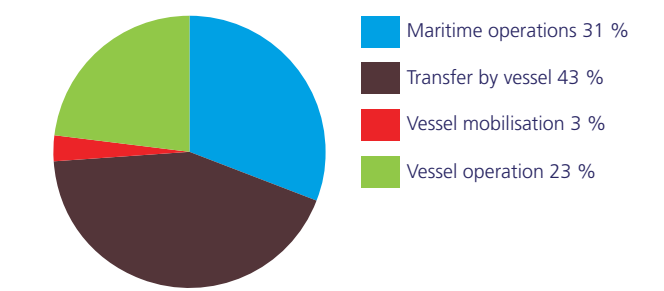


Figure 15: Marine operations - work process breakdown

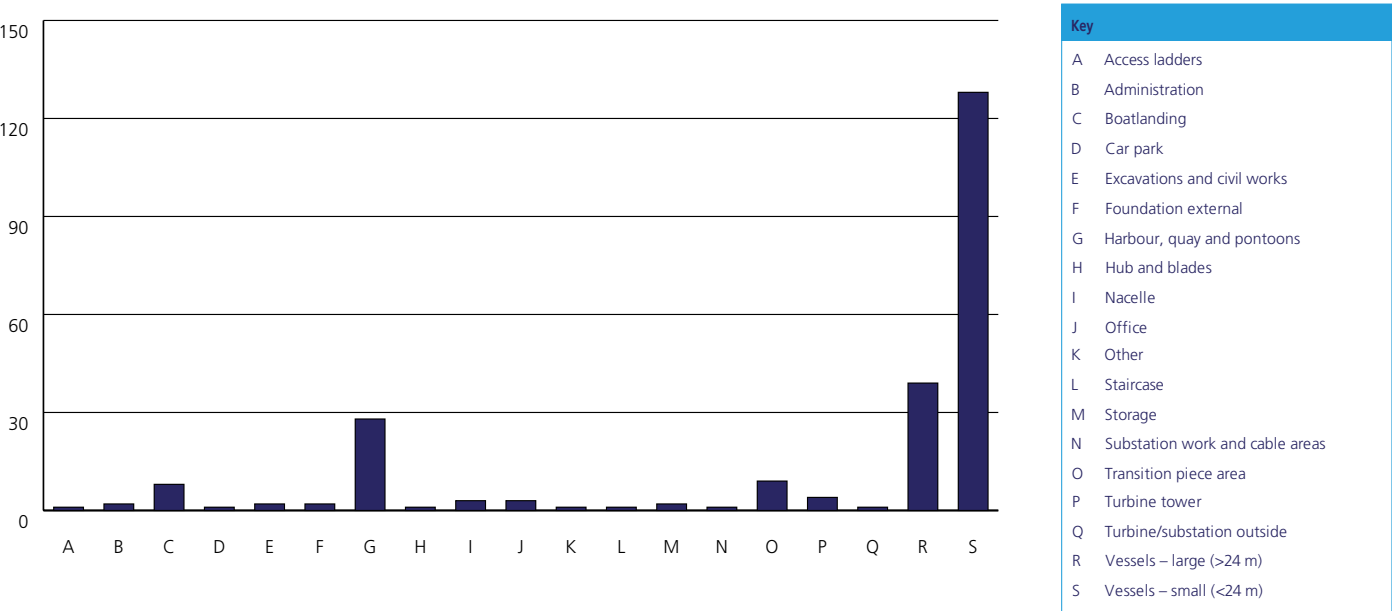


Figure 16: Marine operations – incident area breakdown

Lifting operations

Summary – breakdown by incident area and consequence

In 2014, 143 incidents occurred during lifting operations. 102 incidents occurred on operational sites, 38 incidents occurring on project sites, two during the survey phase and one outside of company premises.

24 % of all incidents occurred on vessels. Excluding vessels, the majority of incidents which occurred during lifting operations occurred on the harbour, quay and pontoon (19 %) and the transition piece area (15 %). There were three lost work day incidents which occurred during lifting operations and activities (see Figure 17 and 18).

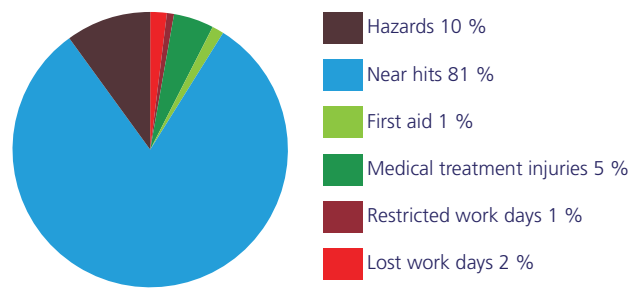
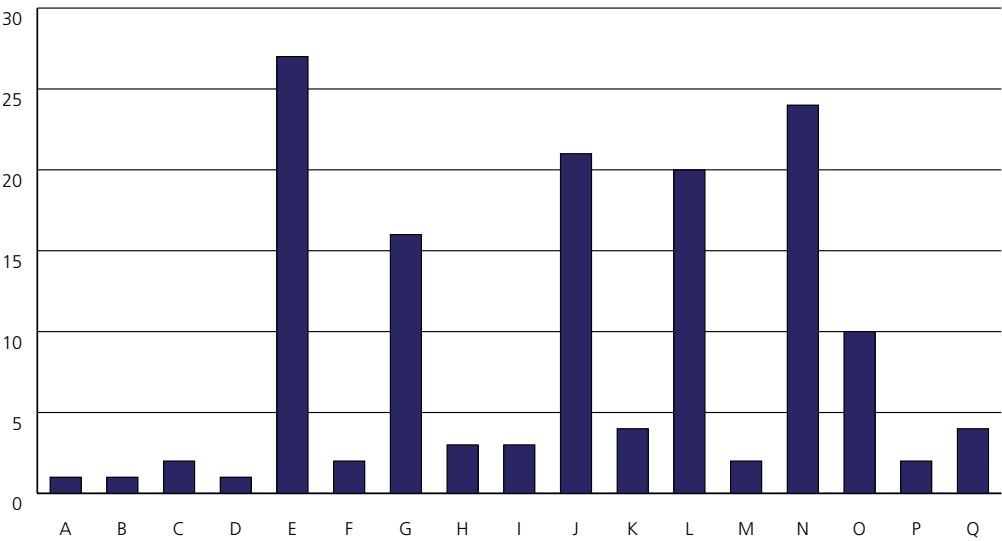


Figure 17: Lifting operations – incident consequence



Key	
A	Access roads
B	Excavations and civil works
C	Foundation external
D	Foundation internal
E	Harbour, quay and pontoons
F	Hub and blades
G	Nacelle
H	Storage
I	Substation work and cable areas
J	Transition piece area
K	Turbine assembly area
L	Turbine tower
M	Turbine/substation outside
N	Vessels – large (>24 m)
O	Vessels – small (<24 m)
P	Warehouse
Q	Workshop

Figure 18: Lifting operations – incident area breakdown

Operating plant and machinery

Summary – breakdown by incident area and consequence

In 2014, there were 134 incidents which occurred during plant and machinery operation. The majority of these incidents took place on operational sites (119 incidents) with the remaining 15 incidents occurring on project sites.

21 % of all incidents which occurred whilst operating plant and machinery occurred on harbour, quay and pontoons, 17 % on the turbine tower and 10 % on the nacelle. 83 % of incidents reported were classified as near hits, and there were three lost work day incidents (see Figures 19 and 20).

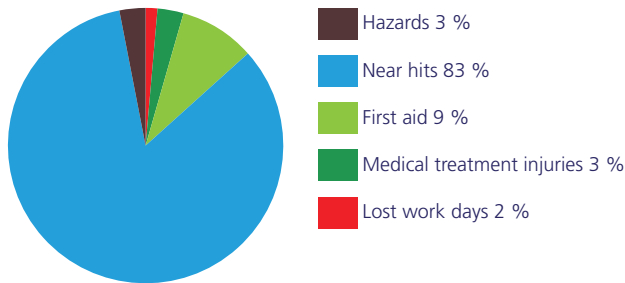
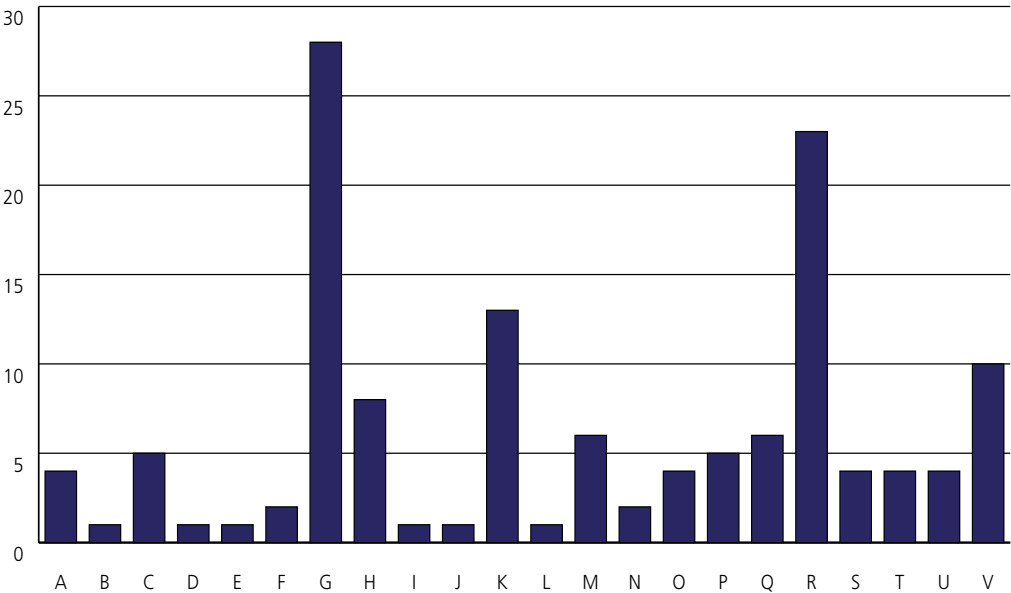


Figure 19: Operating plant and machinery – incident consequence



Key	
A	Access ladders
B	Access roads
C	Administration
D	Car park
E	Foundation external
F	Foundation internal
G	Harbour, quay and pontoons
H	Hub and blades
I	Kitchen and canteen
J	Met mast
K	Nacelle
L	Public road/area
M	Storage
N	Substation HV areas (>1 000 V)
O	Substation work and cable areas
P	Transition piece area
Q	Turbine assembly area
R	Turbine tower
S	Turbine/substation outside
T	Vessels – large (>24 m)
U	Vessels – small (<24 m)
V	Workshop

Figure 20: Operating plant and machinery – incident area breakdown

Dropped object incidents

Summary – breakdown by incident area, consequence and work process

In 2014, there were 93 dropped object incidents. 66 incidents occurred on operation sites, 23 incidents on project sites, three incidents during the survey phase and one incident in a G9 member office.

64 % of all dropped object incidents occurred on the turbine, 20 % on vessels and 12 % during onshore activity. 33 % of dropped object incidents occurred during lifting operations, 24 % during incidents whilst working at height and 17 % during plant and machinery operation.

There were no lost work days as a result of dropped object incidents; however, there were two medical treatment injuries (see Figures 21, 22 and 23).

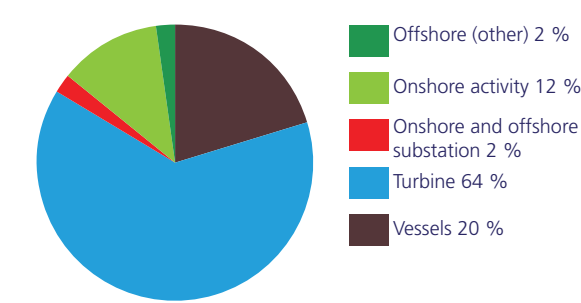


Figure 21: Dropped object – incident area summary

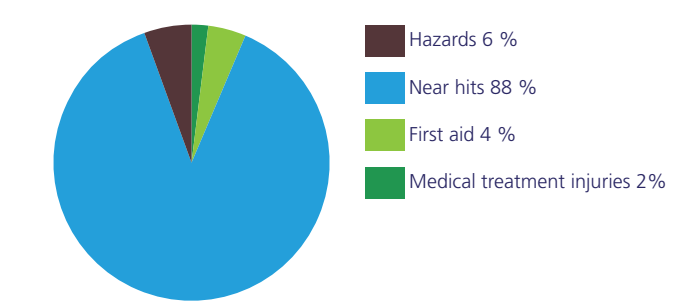


Figure 22: Dropped object – incident consequence

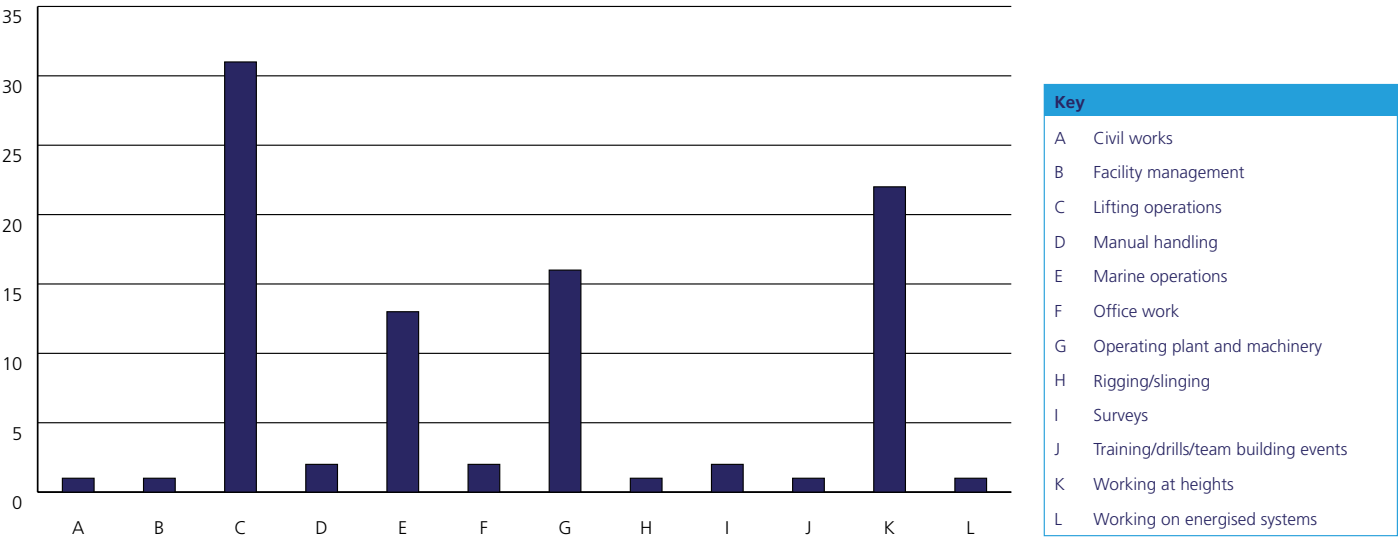


Figure 23: Dropped object – work process breakdown

High potential incidents

Summary – breakdown by incident area, consequence and work process

In 2014, there were 137 high potential incidents reported. 81 incidents occurred at operation sites, 51 incidents on project sites, four incidents during the survey phase and one incident in a G9 member office.

42 % of the high potential incidents occurred on the turbine, 34 % on vessels and 17 % during onshore activity. The work process breakdown for high potential incidents was reported as 26 % for lifting operations, 23 % during marine operations and 10 % during plant and machinery operation.

There were five high potential incidents which resulted in lost work day and 85 % of all high potential incidents reported were classified as near hits (see Figures 24, 25 and 26).

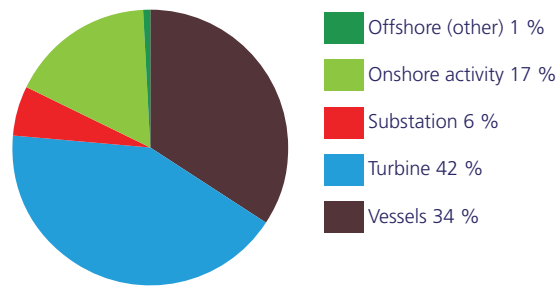


Figure 24: High potential – incident area summary

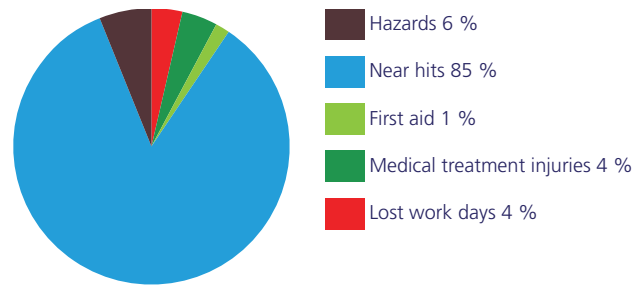


Figure 25: High potential – incident consequence

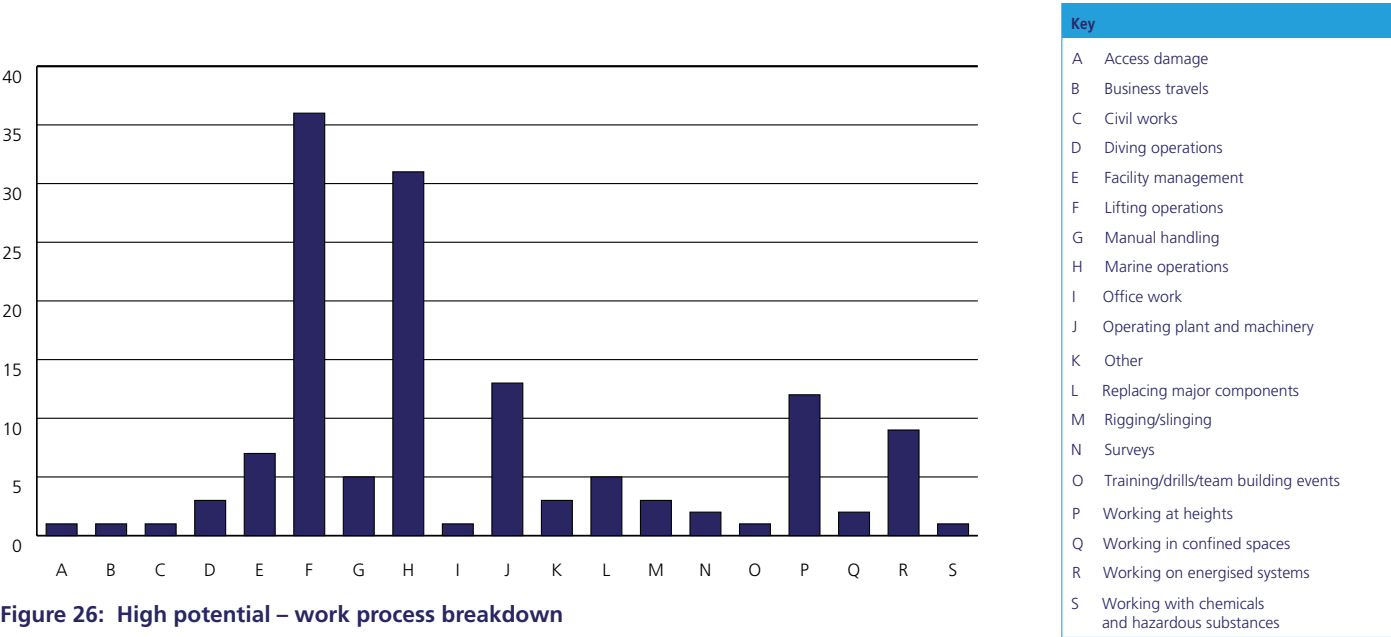


Figure 26: High potential – work process breakdown

Emergency Response or Medical Evacuation (ERME) incidents

Summary – breakdown by incident area, consequence and work process

In 2014 there were 28 emergency response or medical evacuation (ERME) incidents, 15 incidents on operation sites and 13 incidents on project sites.

42 % of ERME incidents reported occurred on vessels and 30 % on the turbine. 19 % of ERME incidents occurred during manual handling work and 19 % during marine operations.

There were five lost work day incidents and 14 medical treatment injuries resulting from ERME responses (see Figures 27, 28 and 29).

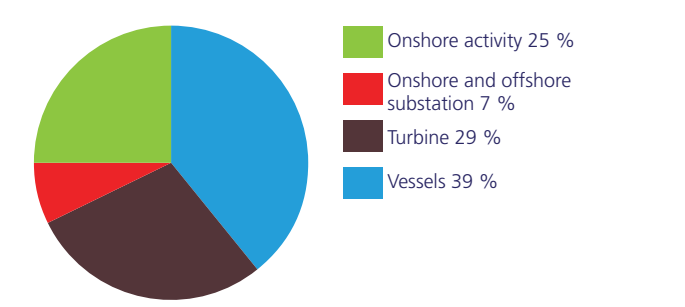


Figure 27: ERME – incident area summary

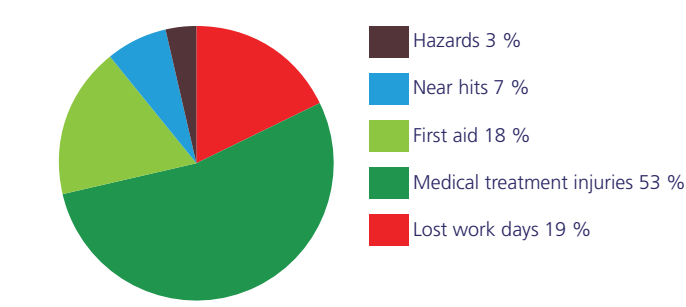


Figure 28: ERME – incident consequence

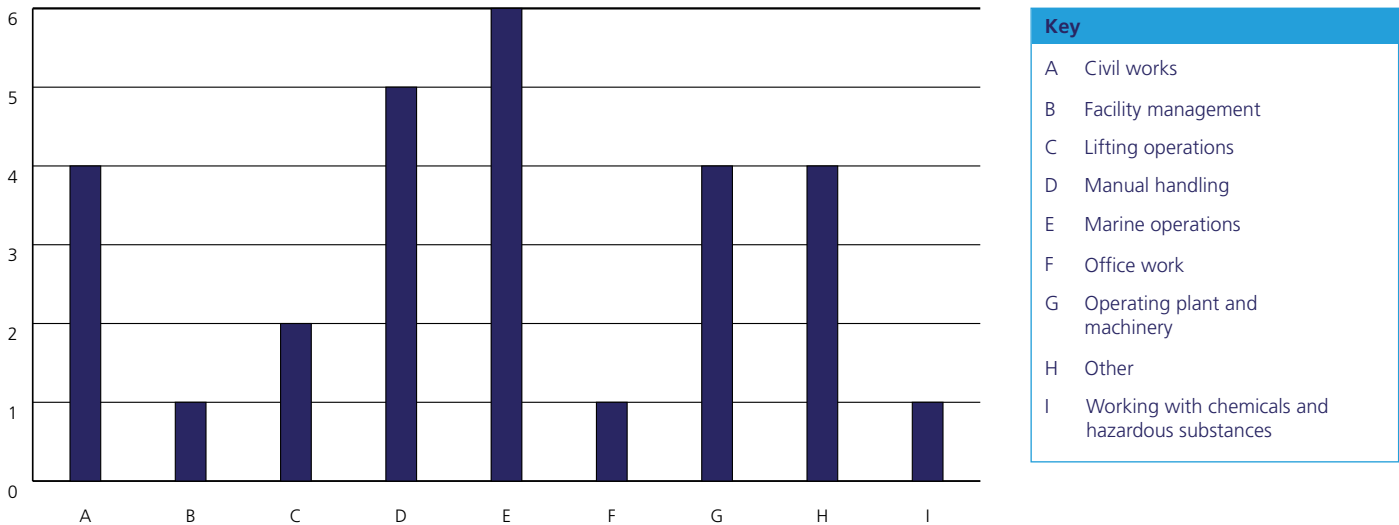


Figure 29: ERME – work process breakdown

Concluding remarks

The 2014 annual report provides a detailed assessment of offshore wind HSE incident data and for the first time provides data on hours worked, allowing for trend analysis to be undertaken and also benchmarking against other industries and sectors.

There is an expectation that the owners of offshore wind farms are open and transparent in relation to their health and safety performance and the G9 members hope that publication of the HSE incident data in this report goes some way to meeting this expectation.

At the request of the Crown Estate, the G9 has taken on the reporting and analysis of UK Round Three offshore wind projects. In addition to this G9 report, A UK HSE statistics report will be published which will also include data from non-G9 members.

For incident data captured in 2015, information provided on hours worked will be separated and collected for each of the major phases of an offshore wind project (Development, Construction and Operations) to allow for more accurate benchmarking and trend analysis.

Annex A

Table A1: Incident summary – incident category and area – all sites

Incident category and area	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Offshore (accommodation and substructure)	1	4	3	2			10
Kitchen and canteen		2	3				5
Met mast	1	2					3
Other				2			2
Onshore activity	28	228	30	27	3	9	325
Access roads		8				1	9
Administration		12	2	1		1	16
Boatlanding	1	9	2				12
Car park		6	1	2			9
Company vehicle		1	1				2
Excavations and civil works		18	3	3		1	25
Harbour, quay and pontoons	16	105	7	11	2	3	144
Office	5	15	10	2			32
Other				1			1
Public road/area		3		4	1		8
Staircase		2				1	3
Storage	3	22	2				27
Warehouse	3	8		1			12
Workshop		19	2	2		2	25
Onshore and offshore substation	2	16	1	4	2		25
Substation HV areas (>1 000 V)	1	3					4
Substation work and cable areas	1	13	1	4	2		21
Turbine	38	256	38	24	4	18	378
Access ladders	1	18	3	3	1		26
Foundation external	2	9				1	12
Foundation internal		4		1	1	1	7
Helicopter hoisting and landing area	1	4	1				6
Hub and blades		17	1	1		1	20
Nacelle	10	46	17	5	1	4	83
Other				1			1
Transition piece area	8	36	6	1		2	53
Turbine assembly area		12	1	3	1	2	19
Turbine tower	9	96	5	7		7	124
Turbine/substation outside	5	11	1	1			18
Yaw gear space	2	3	3	1			9
Vessels	28	151	23	32	5	17	256
Vessels – large (>24 m)	5	53	13	21	2	9	103
Vessels – small (<24 m)	23	98	10	11	3	8	153
Total	97	655	95	89	14	44	994

Table A2: Incident area – operations site

Incident area	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Access ladders	1	13					14
Access roads		4				1	5
Administration		7	1			1	9
Boatlanding		8	1				9
Car park		5	1	1			7
Company vehicle		1					1
Excavations and civil works		4	1				5
Foundation external		6					6
Foundation internal		4				1	5
Harbour, quay and pontoons	15	96	6	7	1	1	126
Helicopter hoisting and landing area	1	3	1				5
Hub and blades		13	1	1		1	16
Kitchen and canteen		2					2
Met mast	1						1
Nacelle	10	36	12	3	1	1	63
Office	5	13	5	1			24
Other				1			1
Public road/area		1		2			3
Staircase		2					2
Storage	3	19	2				24
Substation HV areas (>1 000 V)		2					2
Substation work and cable areas		6		2			8
Transition piece area	5	33	4	1		1	44
Turbine assembly area		8	1	1			10
Turbine tower	6	77	2	3		6	94
Turbine/substation outside	5	9	1	1			16
Vessels – large (>24 m)	1	18	3	2		1	25
Vessels – small (<24 m)	11	72	6	3	2	5	99
Warehouse	3	5		1			9
Workshop		17	2	2			21
Yaw gear space		2	2	1			5
Total	67	486	52	33	4	19	661

Table A3: Incident area – projects site

Incident area	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Access ladders		5	3	3	1		12
Access roads		4					4
Administration		5	1	1			7
Boatlanding	1	1	1				3
Car park		1		1			2
Company vehicle			1				1
Excavations and civil works		13	2	3		1	19
Foundation external	1	3				1	5
Foundation internal				1	1		2
Harbour, quay and pontoons	1	9		4	1	2	17
Helicopter hoisting and landing area		1					1
Hub and blades		4					4
Kitchen and canteen			3				3
Met mast		2					2
Nacelle		10	5	2		3	20
Office		1	4	1			6
Other				3			3
Public road/area		1		2			3
Staircase						1	1
Storage		3					3
Substation HV areas (>1 000 V)	1	1					2
Substation work and cable areas	1	7	1	2	2		13
Transition piece area	3	3	2			1	9
Turbine assembly area		4		2	1	2	9
Turbine tower	3	19	3	4		1	30
Turbine/substation outside		2					2
Vessels – large (>24 m)	3	29	7	19	2	7	67
Vessels – small (<24 m)	12	25	4	8	1	3	53
Warehouse		3					3
Workshop		2				2	4
Yaw gear space	2	1	1				4
Total	28	159	38	56	9	24	314

Table A4: Incident area – surveys site

Incident area	Hazards	Near hits	First aid	Lost work days	Total
Excavations and civil works		1			1
Foundation external	1				1
Harbour, quay and pontoons			1		1
Office			1		1
Vessels – large (>24 m)	1	5	3	1	10
Vessels – small (<24 m)		1			1
Total	2	7	5	1	15

Table A5: Incident area – other

Incident area	Near hits	Restricted work days	Total
Office	1		1
Public road/area	1	1	2
Vessels – large (>24 m)	1		1
Total	3	1	4

Table A6: Incident summary – work process – all sites

Work process	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Asset damage		1					1
Business travels		8	3	4		1	16
Catering/cleaning	1	4	4				9
Civil works		37	6	2	1	5	51
Diving operations		5		1			6
Facility management	32	88	6	5	1	2	134
Hot works				1			1
Lifting operations	14	116	2	7	1	3	143
Manual handling	3	19	17	12	2	10	63
Maritime operations	14	43	2	10	2	3	74
Office work		6	6	1			13
Operating plant and machinery	4	111	12	4		3	134
Other		9	4	14	1	1	29
Replacing major components		9					9
Rigging/slinging	1	8		1			10
Surveys		8		2			10
Training/drills/team building events		3	1	1		1	6
Transfer by helicopter	1	2					3
Transfer by vessel	15	63	12	2	1	8	101
Vessel mobilisation		5			1		6
Vessel operation	6	36	3	8	1	2	56
Working at heights	4	57	9	3	1	3	77
Working in confined spaces		3		1			4
Working on energised systems		10	1	1		1	13
Working with chemicals and hazardous substances	2	3	1	2	2		10
Working with hand tools/power tools		1	6	7		1	15
Total	97	655	95	89	14	44	994

Table A7: Work process – operations site

Work process	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Business travels		4	1	2			7
Catering/cleaning	1	3	2				6
Civil works		6	1			1	8
Diving operations		2					2
Facility management	30	77	5	2		1	115
Lifting operations	8	89	1	2	1	1	102
Manual handling		18	10	8	1	3	40
Maritime operations	11	27		3	1	2	44
Office work		5	3	1			9
Operating plant and machinery	2	100	11	3		3	119
Other		1		1			2
Replacing major components		7					7
Rigging/slinging	1	4					5
Surveys		2					2
Training/drills/team building events		3		1		1	5
Transfer by helicopter	1	2					3
Transfer by vessel	7	54	7	1		4	73
Vessel mobilisation		5					5
Vessel operation		23	3	2	1		29
Working at heights	4	44	5	1		3	57
Working in confined spaces		2		1			3
Working on energised systems		6		1			7
Working with chemicals and hazardous substances	2	2	1	1			6
Working with hand tools/power tools			2	3			5
Total	67	486	52	33	4	19	661

Table A8: Work process – projects site

Work process	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Asset damage		1					1
Business travels		3	2	2		1	8
Catering/cleaning		1	2				3
Civil works		31	5	2	1	4	43
Diving operations		3		1			4
Facility management	2	11	1	3	1	1	19
Hot works				1			1
Lifting operations	5	25	1	5		2	38
Manual handling	3	1	4	4	1	7	20
Maritime operations	3	16	2	7	1		29
Office work			2				2
Operating plant and machinery	2	11	1	1			15
Other		8	4	13		1	26
Replacing major components		2					2
Rigging/slinging		3		1			4
Surveys		2		2			4
Training/drills/team building events			1				1
Transfer by vessel	8	9	4	1	1	4	27
Vessel mobilisation					1		1
Vessel operation	5	12		6		2	25
Working at heights		13	4	2	1		20
Working in confined spaces		1					1
Working on energised systems		4	1			1	6
Working with chemicals and hazardous substances		1		1	2		4
Working with hand tools/power tools		1	4	4		1	10
Total	28	159	38	56	9	24	314

Table A9: Work process – surveys site

Work process	Hazards	Near hits	First aid	Lost work days	Total
Lifting operations	1	1			2
Manual handling			3		3
Maritime operations				1	1
Office work			1		1
Rigging/slinging		1			1
Surveys		4			4
Transfer by vessel			1		1
Vessel operation	1	1			2
Total	2	7	5	1	15

Table A10: Work process – other sites

Work process	Near hits	Restricted work days	Total
Business travels	1		1
Lifting operations	1		1
Office work	1		1
Other		1	1
Total	3	1	4

Table A11: Lost work days breakdown by incident area and work process

	Total
Business travels	1
Vessels – large (>24 m)	1
Civil works	5
Excavations and civil works	1
Foundation external	1
Hub and blades	1
Vessels – large (>24 m)	1
Workshop	1
Facility management	2
Turbine tower	2
Lifting operations	3
Harbour, quay and pontoons	1
Turbine tower	1
Vessels – large (>24 m)	1
Manual handling	10
Harbour, quay and pontoons	2
Nacelle	3
Turbine assembly area	2
Turbine tower	2
Vessels – large (>24 m)	1
Maritime operations	3
Vessels – large (>24 m)	2
Vessels – small (<24 m)	1
Operating plant and machinery	3
Access roads	1
Foundation internal	1
Nacelle	1
Other	1
Vessels – large (>24 m)	1
Training/drills/team building events	1
Administration	1
Transfer by vessel	8
Staircase	1
Transition piece area	1
Vessels – small (<24 m)	6
Vessel operation (including jack-ups and barges)	2
Vessels – large (>24 m)	1
Vessels – small (<24 m)	1
Working at heights	3
Transition piece area	1
Turbine tower	2
Working on energised systems (electrical, hydraulic, pneumatic)	1
Vessels – large (>24 m)	1
Working with hand tools/power tools	1
Workshop	1
Total	44

Table A12: Marine operations breakdown by incident area and consequence

Incident area	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Access ladders		1					1
Administration		2					2
Boatlanding	1	5	2				8
Car park		1					1
Excavations and civil works		2					2
Foundation external	1	1					2
Harbour, quay and pontoons	6	21		1			28
Hub and blades		1					1
Nacelle		3					3
Office		3					3
Other				1			1
Staircase						1	1
Storage	1		1				2
Substation work and cable areas	1						1
Transition piece area		7		1		1	9
Turbine tower		4					4
Turbine/substation outside				1			1
Vessels – large (>24 m)	4	18	4	8	2	3	39
Vessels – small (<24 m)	21	78	10	8	3	8	128
Total	35	147	17	20	5	13	237

Table A13: Lifting operations breakdown by incident area and consequence

Incident area	Hazards	Near hits	First aid	Medical treatment injuries	Restricted work days	Lost work days	Total
Access roads		1					1
Excavations and civil works		1					1
Foundation external	1	1					2
Foundation internal		1					1
Harbour, quay and pontoons	1	21		4		1	27
Hub and blades		2					2
Nacelle	3	11		1	1		16
Storage		3					3
Substation work and cable areas		3					3
Transition piece area	4	17					21
Turbine assembly area		3	1				4
Turbine tower	2	17				1	20
Turbine/substation outside	1	1					2
Vessels – large (>24 m)	1	20	1	1		1	24
Vessels – small (<24 m)	1	8		1			10
Warehouse		2					2
Workshop		4					4
Total	14	116	2	7	1	3	143

Table A14: Operating plant and machinery breakdown by incident area and consequence

Incident area	Hazards	Near hits	First aid	Medical treatment injuries	Lost work days	Total
Access ladders		4				4
Access roads					1	1
Administration		4	1			5
Car park		1				1
Foundation external		1				1
Foundation internal		1			1	2
Harbour, quay and pontoons	1	23	3	1		28
Hub and blades		6	1	1		8
Kitchen and canteen		1				1
Met mast		1				1
Nacelle	2	6	4		1	13
Public road/area		1				1
Storage		5	1			6
Substation HV areas (>1 000 V)		2				2
Substation work and cable areas		4				4
Transition piece area	1	3	1			5
Turbine assembly area		4		2		6
Turbine tower		22	1			23
Turbine/substation outside		4				4
Vessels – large (>24 m)		4				4
Vessels – small (<24 m)		4				4
Workshop		10				10
Total	4	111	12	4	3	134

Table A15: Dropped objects breakdown by incident category, area and consequence

Incident category and area	Hazards	Near hits	First aid	Medical treatment injuries	Total
Offshore (accommodation and substructure)		2			2
Kitchen and canteen		1			1
Met mast		1			1
Onshore activity		9		2	11
Access roads		1			1
Harbour, quay and pontoons		3		2	5
Office		2			2
Warehouse		1			1
Workshop		2			2
Onshore and offshore substation		2			2
Substation work and cable areas		2			2
Turbine	4	51	4		59
Access ladders		3			3
Foundation external	1	3			4
Hub and blades		10			10
Nacelle	1	8			9
Transition piece area	1	16	2		19
Turbine assembly area		2			2
Turbine tower	1	9			10
Yaw gear space			2		2
Vessels	1	18			19
Vessels – large (>24 m)		10			10
Vessels – small (<24 m)	1	8			9
Total	5	82	4	2	93

Table A16: Dropped objects breakdown by work process and consequence

Work progress	Hazards	Near hits	First aid	Medical treatment injuries	Total
Civil works		1			1
Facility management		1			1
Lifting operations	3	27		1	31
Manual handling		2			2
Maritime operations	1	3			4
Office work		2			2
Operating plant and machinery		15	1		16
Rigging/slinging		1			1
Surveys		2			2
Training/drills/team building events		1			1
Transfer by vessel	1	3		1	5
Vessel operation		4			4
Working at heights		19	3		22
Working on energised systems		1			1
Total	5	82	4	2	93

Table A17: High potential incident breakdown by incident category, area and consequence

Incident category and area	Hazards	Near hits	First aid	Medical treatment injuries	Lost work days	Total
Offshore (accommodation and substructure)		1				1
Met mast		1				1
Onshore activity		20	1	2		23
Access roads		4				4
Administration			1			1
Boatlanding		1				1
Excavations and civil works		3				3
Harbour, quay and pontoons		7		2		9
Office		1				1
Staircase		1				1
Workshop		3				3
Onshore and offshore substation	2	5		1		8
Substation HV areas (>1 000 V)	1					1
Substation work and cable areas	1	5		1		7
Turbine	3	52	1	1	1	58
Access ladders	1	3				4
Foundation external		7				7
Foundation internal		1			1	2
Helicopter hoisting and landing area		1				1
Hub and blades		7				7
Nacelle	1	9				10
Transition piece area		5				5
Turbine assembly area		3		1		4
Turbine tower	1	13				14
Turbine/substation outside		3				3
Yaw gear space			1			1
Vessels	3	38		2	4	47
Vessels – large (>24 m)	2	24		1	1	28
Vessels – small (<24 m)	1	14		1	3	19
Total	8	116	2	6	5	137

Table A18: High potential incident breakdown by work process and consequence

Work process	Hazards	Near hits	First aid	Medical treatment injuries	Lost work days	Total
Asset damage		1				1
Business travels		1				1
Civil works		1				1
Diving operations		3				3
Facility management	1	6				7
Lifting operations	2	33		1		36
Manual handling	1	2		2		5
Maritime operations	1	9			2	12
Office work		1				1
Operating plant and machinery		10	1	1	1	13
Other		2		1		3
Replacing major components		5				5
Rigging/slinging		3				3
Surveys		2				2
Training/drills/team building events		1				1
Transfer by vessel	1	10			2	13
Vessel operation	1	4		1		6
Working at heights	1	10	1			12
Working in confined spaces		2				2
Working on energised systems		9				9
Working with chemicals and hazardous substances		1				1
Total	8	116	2	6	5	137

Table A19: Emergency evacuation breakdown by incident category, area and consequence

Incident category and area	Hazards	Near hits	First aid	Medical treatment injuries	Lost work days	Total
Onshore activity			2	5		7
Administration			1			1
Excavations and civil works				1		1
Harbour, quay and pontoons				4		4
Storage			1			1
Onshore and offshore substation			1	1		2
Substation work and cable areas			1	1		2
Turbine	1		2	1	3	8
Foundation external					1	1
Hub and blades					1	1
Nacelle			1		1	2
Turbine assembly area			1			1
Turbine tower	1			1	1	3
Vessels		2		8	1	11
Vessels – large (>24 m)				5		5
Vessels – small (<24 m)		2		3	1	6
Total	1	2	5	15	5	28

Table A20: Emergency evacuation breakdown by work process and consequence

Work process	Hazards	Near hits	First aid	Medical treatment injuries	Lost work days	Total
Civil works			1	1	2	4
Facility management				1		1
Lifting operations			1	1		2
Manual handling	1			3	1	5
Maritime operations				1		1
Office work				1		1
Operating plant and machinery			2	1	1	4
Other			1	3		4
Transfer by vessel		1			1	2
Vessel operation		1		2		3
Working with chemicals and hazardous substances				1		1
Total	1	2	5	15	4	28

Annex B

The following incident consequence definitions have been used in the G9 incident data:

Fatality	Incident that involves one or more people who died as a result of a work-related incident or occupational illness. 'Delayed' deaths that occur after the incident are to be included if the deaths were a direct result of the incident.
Lost work day	Non-fatal incident that involves a person being unfit to perform any work on any day after the occurrence of the occupational injury. 'Any day' includes rest days, weekend days, leave days, public holidays or days after ceasing employment.
Restricted work day	Incident that does not result in a fatality or a lost work day but does result in a person being unfit for the full performance of the regular job on any work on any day after the occurrence of the occupational injury.
Medical treatment injury	Those incidents not severe enough to be reported as fatalities, lost work day incidents or restricted work day incidents but are more severe than requiring simple first aid treatment.
First aid	An injury which requires simple medical treatment that is self-administered or by a first aider, doctor or nurse, but does not result in lost time or long-term medical care.
Near hit	A near hit is any incident which could have resulted in a work-related accident but did not, either by chance or timely intervention.
Hazard	A hazard is a condition or a situation where there is a potential to cause an incident.

The following statistical definitions have been used in the G9 incident data analysis:

Total recordable injury rate (TRIR)	The number of fatalities, lost work days, restricted work days and other medical treatment injuries requiring treatment by a medical professional per million hours worked.
Lost time injury frequency (LTIF)	The number of fatalities and lost work day injuries per million hours worked.

In partnership with



61 New Cavendish Street
London W1G 7AR, UK

t: +44 (0)20 7467 7100
e: info@energyinst.org

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