

## ACCIDENT STATISTICS FOR SHIPBUILDING AND SHIP-REPAIR

### SUMMARY

This paper presents data on the kind of accidents reported to HSE from the shipbuilding and ship-repair industries for the years 1999/2000, 2000/2001 and 2001/2002 (provisional).

### STATISTICS

1. HSE accident statistics for the shipbuilding and ship-repair industries for the years 1999/2000, 2000/2001 and 2001/2002 (provisional) are now available. They are set out in the attached Appendix 1. It is not possible to differentiate between shipbuilding and ship-repair.
2. The statistics have been broken down by kind of accident and are set out in the table in Appendix 1.
3. From April 2001, there has been a change in the categories of accident kind. These changes affect the statistics for 2001/2002 but allow for potentially more information to be gained from the data as many of the accident kind categories previously used have been subdivided. To allow for an understanding of the accident kind categories, the 2 sets of definitions are set out in Appendix 2.
4. April 2001 also saw a change in arrangements for the collection of statistics. From this date, reports have been sent to a central point where they are also classified – as opposed to reporting to and classification at HSE offices. It is, therefore, not surprising that at the level of accident kind for one industry that there are some signs of significant change in numbers (see also para 10).
5. The most recent all reported injury rates per 100,000 employed for shipyards and comparable ones for manufacturing are:

1996/97	Shipbuilding and ship-repair	1459.8
	Manufacturing	1210.5
1997/98	Shipbuilding and ship-repair	2193.2
	Manufacturing	1243.5
1998/99	Shipbuilding and ship-repair	2368.9
	Manufacturing	1172.9
1999/2000	Shipbuilding and ship-repair	2603.8
	Manufacturing	1213.0
2000/2001	Shipbuilding and ship-repair	2330.6
	Manufacturing	1194.1

## DISCUSSION

6. It is pleasing to note that for a 3<sup>rd</sup> year running the overall number of accidents reported has reduced and for the first time since the definition of major injuries was extended, the number of this type of injury reported is less than 100.

7. There has also been a welcome drop in the number of accidents involving falls from a height to 9% of all shipyard accidents compared to 15% for the period 1996/97 to 2000/01. A similar position when the next full year statistics are available will point to this being sustained but continued effort is needed and the figures 2002/03 will include a recent shipyard fatality involving a high fall. For further details see paper 47/C.

8. The 3 kinds of accident reported most remain:

- handling/lifting/carrying
- slip/trip on the same level; and
- hit by an object.

(See also Appendix 3, which displays the kinds in a bar graph.)

9. Together, these 3 causes of accidents account for 74% of the reported total in 2001/02.

10. At first sight, the number of handling injuries reported appears to have increased and, by contrast, the number of those due to being hit by an object to have declined. Past analysis of these 2 causes has shown that there has been overlap where an injury is due to an object being handled falling and striking the injured person. Addition of the last 3 years totals of these 2 accident kinds gives figures of 310, 260 and 245, which is consistent with the overall trend of total accidents reported in the industry. It will be noted that Appendix 2 is clear that accidents due to being hit by an object being handled are to be classified as handling accidents. This could be a cause of injury worthy of attention (but see also para 12 below).

11. The additional detail available from the extra new classifications provides some insight into causation for 2 of the 3 major accident kinds.

12. **65% of handling injuries** are associated with the 3 main causes, which are:

- sprains/strains from body movement whether or not a load is involved – 27%
- injured through cuts from sharp/coarse material or equipment or from trapped fingers – not from weight of materials being handled – 21%
- lifting or putting down loads – 17%

13. **31% of slips/trips** on the same level are associated with an obstruction.

## **CONCLUSIONS**

14. Together, the causes highlighted in paras 12 and 13 account for 27.5 % of all reported injuries in 2001/02.

15. Concentration on prevention of the 3 most reported kinds of accident (para 8) but particularly on the causes highlighted in paras 12 and 13 should enable the industry to make its contribution to the Government's targets in Revitalising Health and Safety.

## **ACTION**

16. Members are invited to:

- discuss these statistics at the 47<sup>th</sup> meeting and to
- consider an initiative to reduce accidents as suggested by para 15.

## APPENDIX 1

### SHIPBUILDING/REPAIR - KIND OF ACCIDENT BY REPORT TYPE

KIND	FATAL			MAJOR			3 DAY			TOTAL		
	99/00	00/01	01/02 (P)	99/00	00/01	01/02 (P)	99/00	00/01	01/02 (P)	99/00	00/01	01/02 (P)
Machinery	0	0	0	6	3	5	18	13	10	24	16	15
Hit by object	0	0	0	23	32	15	114	99	77	137	131	92
Fall structure	-	-	0	-	-	1	-	-	3	-	-	4
Fall equipment	-	-	0	-	-	2	-	-	5	-	-	7
Ejected	-	-	0	-	-	1	-	-	2	-	-	3
Pressure	-	-	0	-	-	0	-	-	1	-	-	1
From explosion	-	-	0	-	-	1	-	-	0	-	-	1
Hand tool	-	-	0	-	-	1	-	-	11	-	-	12
Person	-	-	0	-	-	0	-	-	1	-	-	1
Other	-	-	0	-	-	9	-	-	54	-	-	63
Hit by vehicle	0	0	0	1	0	3	1	7	2	2	7	5
Forward	-	-	0	-	-	2	-	-	1	-	-	3
Reverse	-	-	0	-	-	1	-	-	1	-	-	2
Overturn	-	-	0	-	-	0	-	-	0	-	-	0
Runaway	-	-	0	-	-	0	-	-	0	-	-	0
Other	-	-	0	-	-	0	-	-	0	-	-	0
Hit something fixed	0	0	0	6	8	5	52	28	26	58	36	31

Structure	-	-	0	-	-	3	-	-	21	-	-	24
Vehicle	-	-	0	-	-	0	-	-	0	-	-	0
Step on	-	-	0	-	-	0	-	-	1	-	-	1
Other	-	-	0	-	-	2	-	-	4	-	-	6
Handling	0	0	0	7	9	9	166	120	144	173	129	153
Sharp	-	-	0	-	-	4	-	-	28	-	-	32
Body movement	-	-	0	-	-	0	-	-	42	-	-	42
Person	-	-	0	-	-	0	-	-	0	-	-	0
Person, equipment	-	-	0	-	-	0	-	-	0	-	-	0
Lifting, putting down	-	-	0	-	-	0	-	-	26	-	-	26
Pushing, pulling	-	-	0	-	-	0	-	-	8	-	-	8
Carrying	-	-	0	-	-	0	-	-	7	-	-	7
Other	-	-	0	-	-	5	-	-	33	-	-	38
Slip, trip	0	0	0	26	27	34	140	108	96	166	135	130
Wet	-	-	0	-	-	3	-	-	9	-	-	12
Dry	-	-	0	-	-	1	-	-	5	-	-	6
Obstruction	-	-	0	-	-	10	-	-	30	-	-	40
Uneven	-	-	0	-	-	3	-	-	8	-	-	11
Other	-	-	0	-	-	17	-	-	44	-	-	61
Fall	1	0	0	30	27	22	62	62	22	93	89	44
High	1	0	0	8	10	7	12	10	1	21	20	8
Low	0	0	0	20	14	13	41	45	10	61	59	23
Other	0	0	0	2	3	2	9	7	11	11	10	13
Collapse	0	0	0	0	1	0	0	1	1	0	2	1

Drown, asphyxiation	0	0	0	0	2	0	1	1	0	1	3	0
Water	-	-	0	-	-	0	-	-	0	-	-	0
Other liquid	-	-	0	-	-	0	-	-	0	-	-	0
Engulf	-	-	0	-	-	0	-	-	0	-	-	0
Confined	-	-	0	-	-	0	-	-	0	-	-	0
Choke	-	-	0	-	-	0	-	-	0	-	-	0
Other	-	-	0	-	-	0	-	-	0	-	-	0
Exposure	0	0	0	3	1	1	19	16	7	22	17	8
Handling	-	-	0	-	-	1	-	-	0	-	-	1
Failure	-	-	0	-	-	0	-	-	0	-	-	0
Normal	-	-	0	-	-	0	-	-	1	-	-	1
Hot, cold	-	-	0	-	-	0	-	-	3	-	-	3
Infectious	-	-	0	-	-	0	-	-	0	-	-	0
Ambient temp	-	-	0	-	-	0	-	-	0	-	-	0
Other	-	-	0	-	-	0	-	-	3	-	-	3
Fire	0	0	0	2	0	1	3	3	1	5	3	2
Explosion	0	0	0	0	0	0	2	0	2	2	0	2
Electricity	0	0	0	0	0	1	1	2	1	1	2	2
Other	0	0	0	2	3	1	9	6	23	11	9	24
TOTAL	1	0	0	106	113	97	588	466	412	695	579	509

APPENDIX 2

**ACCIDENT KIND CODING CATEGORIES**

Table 1 codes from April 2001

CATEGORY	DESCRIPTION
No information	No information
1. Contact with machinery or material being machined (hit by material ejected in 2 – hit by)	
1.1 Machinery	Contact with machinery or material being machined
2. Hit by moving, flying or falling object (hit by object being handled in 5 – handling)	
2.1 Fall - structure	Hit by object free falling from structure
2.2 Fall - equipment	Hit by object free falling from lifting m/c, vehicle or other equipment
2.3 Ejected	Hit by object ejected whilst using machinery or hand tools
2.4 Pressure	Hit by material under pressure during normal operation of machine or other equipment
2.5 From explosion	Hit by objects or material following an explosion or implosion of pressurised equipment
2.6 Hand tool	Hit by hand tools in use
2.7 Person	Accidentally hit by another person
2.8 Other	
2.9 Unknown	
3. Hit by moving vehicle	
3.1 Forward	Hit by vehicle moving forward
3.2 Reverse	Hit by reversing vehicle
3.3 Overturn	Overturning vehicle
3.4 Runaway	Hit by run away vehicle – not driven
3.5 Unknown	Hit moving vehicle in unknown way
4. Hit something fixed or stationary	
4.1 Structure	Walk into or strike against structure
4.2 Vehicle	Hit against part of vehicle whilst traveling in it
4.3 Step on	Step onto small items on ground
4.3 Other	
4.4 Unknown	
5. Injured whilst handling, lifting or carrying	
5.1 Sharp	Injured through cuts from sharp/coarse material or equipment or from trapped fingers – not from weight of materials being handled
5.2 Body movement	Sprains/strains from body movement whether or not a load is involved
5.3 Handling person	Manually handling or supporting a person
5.4 Handling person with equipment	Manually handling or supporting a person using people handling equipment

5.5 Lifting/putting down	Lifting or putting down loads
5.6 Pushing/pulling	Pushing or pulling loads
5.7 Carrying	Carrying loads
5.8 Other	
5.9 Unknown	
6. Slipped, tripped or fell on same level	
6.1 Wet surface	Slipped on wet surface or other substance
6.2 Dry surface	Slipped on dry surface or dry products/item on the surface
6.3. Obstruction	Tripped over obstruction
6.4 Uneven	Tripped over uneven floor surface
6.5 Other	
6.6 Unknown	
7. Fell from height	
7.1 High fall	Fall from over 2 metres
7.2 Low fall	Fall from up to and including 2 metres
7.3 Unspecified	Fall from unspecified distance
8. Trapped by something collapsing or overturning	
8.1 Collapse	Trapped by something collapsing or overturning
9. Drowned or asphyxiated (asphyxiation from harmful substances count in 10)	
9.1 Drown water	Drowning or near drowning in water
9.2 Drown other	Drowning or near drowning in other liquids
9.3 Asphyxiation - engulfed	Asphyxiation or near asphyxiation due to engulfment by material
9.4 Asphyxiation - confined	Asphyxiation or near asphyxiation due to lack of oxygen in confined area or absorption of oxygen
9.5 Asphyxiation - choking	Asphyxiation or near asphyxiation due to choking
9.6 Other	
9.7 Unknown	
10. Exposed to or in contact with a harmful substance	
10.1 Handling	Exposed to or in contact with a harmful substance during handling, dispensing, filling, mixing etc
10.2 Failure	Exposed to or in contact with a harmful substance due to failure, leak or burst from equipment/machine or other unplanned release
10.3 Normal	Exposed to or in contact with a harmful substance during normal operation of equipment/machine
10.4 Hot/cold	Exposed to or in contact with hot/cold objects, liquids, materials
10.5 Infectious substance	Exposed to or in contact with infectious substances, pathogens or biological material including blood and body fluids
10.6 ambient temperature	Exposed to high/low ambient temperature in atmosphere
10.7 Other	

10.8 Unknown	
11. Exposed to fire	
11.1 Fire	Exposed to fire or fumes from uncontrolled fire
12. Exposed to an explosion	
12.1 Explosion	Exposed to an explosion from igniting materials
13. Contact with electricity or electrical discharge	
13.1 Electricity	Contact with electricity or electrical discharge
14. Injured by an animal	
14.1 Animal	Injured by an animal
15. Physically assaulted by a person	
15.1 Assault	Physically assaulted by a person
16. Another kind of accident	
16.1 Other	Another kind of accident not listed above

Table 2 codes until March 2001

CATEGORY	DESCRIPTION
1. Machinery	Contact with machinery or material being machined
2. Struck by	Struck by moving, including flying objects – includes involving powered hand tools
3. Transport	Struck by moving vehicle
4. Strike/step on	Struck against something fixed or stationary; stepping on something
5. Handling/sprains	Handling, lifting or carrying – sprains and strains
6. Trip	Slip, trip or fall on same level
7. High fall	Fall over 2 metres
8. Low fall	Fall up to and including 2 metres
9. Fall	Fall height unknown
10. Exposure/hot substance	Exposure to or contact with hot substance or object
11. Fire	Exposure to fire
12. Explosion	Exposure to an explosion
13. Volt	Contact with electricity or electrical discharge
14. Animal	Any injury by an animal
15. Other	
16. Assault	Physical assault or violence as a result of deliberate criminal act
17. Not known	

APPENDIX 3

### Shipbuilding and ship-repair – total accidents

