european downstream oil industry safety performance

statistical summary of reported incidents – 2001

Prepared for the CONCAWE Safety Management Group by

D.E. Martin (Consultant)

Brussels
February 2003

ABSTRACT

The eighth such report by CONCAWE, this issue includes own employees as well as contractor data for the year 2001 from 19 companies (representing some 90% of the European refining capacity) and primarily covers the EU, European Economic Area (EEA), and Hungary. The data is reported in terms of Lost Workday Injury Frequency (LWIF) as well as a range of other metrics. It is compared with the averages for the previous five-year period 1996 to 2000 and also to similar statistics from related industries as well as general EU figures. The improvement trend continues as illustrated by the 2001 Lost workday Injury Frequency (LWIF) which at 4.3 is slightly lower than the average for the years 1996-2000 (4.5). The responsible management of safety in the oil industry has resulted in a low level of accidents compared to other industries in Europe despite the intrinsic hazards of the materials handled and the operations carried out. There were 14 fatalities reported this year, one more than for 2000. However, none of these fatalities were caused by fire and hence related to the flammable properties of the materials handled.

KEYWORDS

Accidents, AIF, CONCAWE, FAR, fatality, incidents, injury, LWI, LWIF, marketing, oil industry, refining, RAR, RWI, safety, statistics

INTERNET

This report is available as an Adobe pdf file on the CONCAWE website (www.concawe.be).

CONTENTS

SUMMARY

The importance of collecting and analysing accident data to measure safety performance is recognised throughout the oil industry. A number of key statistics have been identified which are measured by the majority of oil companies operating in Western Europe.

This year, 19 companies operating in the downstream oil industry in Western Europe submitted statistics for this CONCAWE report on safety performance. These companies represent over 90% of the refining capacity in the area. The data cover the year 2001 and are for both the Manufacturing (Refining) and Marketing sectors of the industry. The area of coverage is primarily the EU, EEA and Hungary, but for some companies the data for other European countries such as Poland, Czech Republic, Turkey, etc. is included.

Not all companies operate in both the manufacturing and marketing areas, nor do they all collect the full range of data requested. To allow for this fact, nearly all the data is reported in terms of incident frequencies. The figures therefore, provide a reasonably representative measure of downstream industry safety performance

Accident frequencies in the downstream oil industry in Western Europe are now at low levels and have been maintained so throughout the period of reporting. Overall, the 2000 performance appears slightly improved over the average performance for the previous five years.

From the data submitted it is apparent that there are considerable variations in the results reported by individual companies. Such variations provide a valuable pointer for member companies to identify areas for improvement.

1. INTRODUCTION

This report represents statistical data relating to safety performance in the downstream oil industry in Western Europe collected by CONCAWE. The purpose of collecting the information was twofold:

- to allow member companies to compare their performance against industry norms (i.e. benchmark) so that they can determine the efficacy of their management systems and highlight any deficiencies so that corrective action can be taken.
- to demonstrate that the responsible management of Safety in the downstream oil industry results in a low level of accidents despite the hazards intrinsic to its operations.

This report is the eighth annual report on this subject. The first report covered the years 1993 and 1994 [1], further reports covered 1995 [2], 1996 [3], 1997 [4], 1998 [5], 1999 [6] and 2000 [7]. The 1997 report also gave an overview for the five years 1993 to 1997. The 1998 report also gave a comparison with overall safety performance in the EU and several of the above reports have compared CONCAWE data with that collected for the Exploration and Production business, data from the USA and European Chemical Industry data. This report covers 2001 performance and compares it with that for the previous five years 1996 to 2000 and the whole period of 1993 to 2001. The questionnaire used to collect the data was similar to that used for the previous surveys.

The definitions of the terms used in the survey and hence reported on were unchanged. Although it was recognised that not all companies use exactly the same methods at present, companies were encouraged to report what information they had available even if the definitions they used were not identical. Such differences are believed to be not significant when the statistics are aggregated. However, care needs to be taken when comparing companies as the assumptions used may not be the same.

19 member companies responded this time. This is one less than last year, due to one company not submitting data. However, the report again includes all but two of the CONCAWE membership which operate refineries and over 90% of the Western European refining capacity. This year, the statistics were not affected by mergers within the industry, but two companies were taken over this year which will presumably lead to further changes next year.

It was notable that the majority of these companies were willing for their data to be shared openly with other companies. This free exchange indicates that they felt that they could both learn from the experience of others and help other companies in the area of safety, even though they are competitors.

2. RANGE OF STATISTICS COLLECTED

Not all companies measure their safety performance in the same way or collect the same statistics. To take account of the fact that not all companies could supply data in all of the sections the results are expressed in terms of frequencies per hours worked. The safety performance statistics collected (for definitions see **Appendix 1**) were:

- Lost Workday Injury Frequency (LWIF)
- LWI Severity (days lost per accident) (LWIS)
- All Injury Frequency (AIF)
- Road Accident Rate (RAR)
- Fatalities

The data survey provided a detailed breakdown of key safety statistics. These were split between:

- employees
- contractors

and also between:

- manufacturing (refining)
- marketing including all non refining activities including “Head Office” staff.

The request form was similar to that used in previous surveys except that this year, companies were also asked for brief descriptions of fatal accidents. The area of coverage is primarily the EU, EEA and Hungary, but for some companies the data for other European countries such as Poland, Czech Republic, Turkey, etc. is included.

3. FINDINGS - 2001

Accident frequencies in the downstream petroleum industry are at low levels when compared to other industries [4,10]. With the low level of incidents, the differences year on year are probably not significant, particularly when the changes in the number of companies reporting over the period is considered. The LWIF figure for 2001 shows some improvement over both the long-term average for the years 1993 to 2001 and the previous five-year average for 1996 to 2000. This improvement is more marked if only those companies (now 12) which have participated throughout the nine years of the survey are considered (see **Section 4**).

A summary of the 2001 results compared to those from both the long-term average and the previous 5-year average is also provided in **Table 1**. It should be noted that an additional company has been added to the 2000 data since the report was published. This makes little significant difference to the results. This year, a total of 19 companies reported usable data. This is one less than for last year as two companies did not report this year.

In **Table 1**, the All Injury Frequency (AIF) is only calculated for those companies who reported either or both of Restricted Work Injuries (RWI) or Medical Treatment Cases (MTC). Similarly, LWIS figures exclude data from companies where the number of days lost was not recorded.

Table 1 Comparison of Representative Data for 1993 to 2001

Year - No of Companies	Fatalities	FAR	LWIF	LWIS	AIF	RAR
1993 - 17 companies	18	5.0	4.7	25.7	8.0	3.8
1994 - 17 companies	20	5.4	4.0	24.4	8.3	3.1
1995 - 22 companies	13	3.6	4.6	24.0	11.2	2.6
1996 - 28 companies	14	3.3	4.7	19.5	10.8	2.0
1997 - 27 companies	15	3.4	4.6	22.8	11.4	1.9
1998 - 27 companies	12	2.6	4.5	21.2	9.9	1.5
1999 - 21 companies	8	1.8	4.3	19.3	9.4	0.9
2000 - 20 Companies	13	2.7	4.3	25.5	8.8	0.9
2001 - 19 Companies	14	2.8	4.3	24.0	9.2	0.8
1996-2000 average	12.4	2.7	4.5	21.6	10.0	1.4
1993-2001 average	14.1	3.3	4.4	22.6	9.7	1.6

The aggregated accident data collected from CONCAWE members for 2001 is summarised below in **Table 2**. The range of results expressed in graphical format is shown in **Appendix 2**. It should be noted that in these figures, a zero result usually means that no data was reported for this determinant. However, in a few cases, there were no incidents so that the frequency was actually zero. These cases are indicated on the figures (for LWIF only). In each case, the 2001 figures are compared to the average for the previous five years, or for as many of these years as the company has submitted data. It can be observed that in some cases there are wide differences between the 2001 data and the averages for the years 1996-2000. These mainly represent areas where only a small number of man-hours were recorded which results in a small change in the number of incidents giving a disproportionate change in the frequency.

3.1. HOURS WORKED

In 2001, the total reported hours worked (**Table 2**) by employees and contractors at 496 million were about 25 million more than for 2000. This has presumably arisen from fuller reporting.

Table 2 Aggregated Results for the Nineteen Companies which Reported in 2001

Sector	Manufacturing			Marketing			Both Sectors		
Work Force	Own Staff	Contractor	All Workers	Own Staff	Contractor	All Workers	Own Staff	Contractor	All Workers
Total hours worked (million)	90	73	163	211	121	332	301	194	496
Number of fatalities	5	3	8	3	3	6	8	6	14
Number of LWIs	301	505	806	768	547	1,315	1,069	1,052	2,121
Total days lost through LWIs	6,962	9,080	16,042	16,004	6,615	22,619	22,966	15,695	38,661
Number of RWIs	54	101	155	283	195	478	337	296	633
Number of MTCs	488	469	957	221	262	483	709	731	1,440
AIF	9.9	18.5	13.5	6.7	8.2	7.3	7.7	11.9	9.3
LWIF	3.3	6.9	4.9	3.6	4.5	4.0	3.5	5.4	4.3
LWI Severity (Days/LWI)	26.7	23.8	25.0	27.2	17.3	23.3	27.0	20.5	24.0
Distance travelled (million km)									1112
Number of Road Accidents									937
Road Accident Rate									0.84

Note: The values for AIF and LWIS are calculated after excluding the hours for companies which do not record these data. Therefore, they cannot be calculated from the figures in this table.

3.2. LOST WORKDAY INJURY FREQUENCY (LWIF)

All companies without exception collect employee LWIF data for at least their own staff and this is therefore the most representative statistic of all. In 2001, the LWIF (**Table 1**) calculated overall was 4.3, the same as in 2000 (after adjustment). This was the lowest recorded for all the years of the survey apart from 1994 when only 17 companies reported. It was also slightly lower than the average for the previous five years which was 4.5 and the average for all the years of the survey at 4.4.

The performance of individual companies varied widely as shown in **Figures 1 to 3 and Figures 7 to 9**. The overall figure for contractors (all companies) was again slightly higher (**Table 2**) than for employees (5.4 as against 3.5). Again, contractors operating in refineries had an LWIF (6.9) well above that of company employees in refineries (3.3), but this difference was less marked than in previous years. In the marketing sector, this time, contractors (4.5) and staff (3.6) recorded a similar LWIF.

3.3. LWI SEVERITY (LWIS)

LWI Severity as measured by the number of days lost per incident has until this year shown an improving trend falling from 25.7 days in 1993 to 19.3 days in 1999 (**Table 1**). However, last year the LWIS increased to 25.5 although this year it has decreased again to 24.0. The reason for this is unknown but the number of companies recording this figure has decreased year by year and this year, only 15 companies reported. The differences in sectors have also become more marked varying from 17.3 to 27.2 days per incident. In particular, there is a wide difference between the staff figure (27.0) and the contractor figure (20.5). These figures are

calculated using only the results from companies that record the number of days lost. As a result, the values for LWIS cannot be calculated from the figures in **Table 2**.

3.4. ALL INJURY FREQUENCY (AIF)

All Injury Frequency becomes a more meaningful measure of safety performance as LWIF declines to the low levels now experienced in the oil industry. AIF enables companies to get a better picture of their total safety performance since it records fatalities, restricted work injuries (RWI) and Medical Treatment Cases (MTC) in addition to LWI. In the first three years of the survey, the AIF increased from 8.0 in 1993 to 11.2. It is believed that this did not represent an increase in the number of incidents, but rather, better reporting of minor incidents. Each year, more companies have reported either or both RWI and MTC.

This year, 18 companies reported such data, although not necessarily for all sectors. It should be noted that not all companies operate the restricted work system and also restricted working is not allowed in some countries, but as last year, the AIF figures in the tables were calculated using data from only those companies who reported either RWI or MTC data or both. As a result, the value for AIF cannot be calculated from the figures in **Table 2**.

The overall AIF recorded this year (**Table 1**) was 9.3. This is higher than last year's figure (8.8) but lower than for all years of the survey apart from the first two, and also lower than both the long-term average, and the average for the last five years.

Again, the performance between the various companies varied widely as shown in **Figures 4,5,6** and **10,11,12**. It should be noted that the criteria for defining MTC vary between companies. In these figures, the results of all companies are shown, whether or not they reported both RWI and MTC data. For companies who do not report either RWI or MTC, the AIF shown are the same as the LWIF in the corresponding figures.

3.5. ROAD ACCIDENT RATE (RAR)

This year, companies were asked what constituted a road accident as some doubt had arisen over the precise definition. All the companies who provided this data responded, and of these, all but one answered that a road accident was defined as resulting in any damage or spill of product. The other company only reported road accidents resulting in injury or a spill.

Road Accident Rate data was supplied by eleven companies this year, two more than for 2000. Of those that did respond for this measure, very few companies recorded RAR for either the manufacturing or contractor sectors. Therefore, only the combined RAR data are reported in **Table 2** and **Figure 14**.

There was a steady reduction in RAR from 3.8 in 1993 to 0.9 accidents per million kilometres in 1999, since when the rate has remained very similar although it decreased very marginally this year to 0.8. This figure is lower than both the average for the last five years and the long term average. However, comparison of these data should be made with caution because of the small size of the database and changes in its composition over the years. The eleven companies who reported this time recorded that their vehicles (own and contractor) travelled 1112 million

kilometres in 2000 and were involved in 937 accidents ranging from minor to major. Compared to 2000, both the distance covered and the number of accidents reported were similar.

As stated above, one company only reports accidents resulting in personal injury or spillage. If the results of this company are excluded, then the RAR remains almost unchanged (0.88 rather than 0.84).

3.6. FATALITIES

There were 14 fatalities reported in 2001. Eight of these were employees with six contract staff killed. This was one more fatality than the revised figure for 2000 (all contractors. As a result the Fatal Accident Rate (FAR) also increased marginally from 2.7 fatalities per 100 million man-hours in 1999, to 2.8 in 2001. Even with this increase, the FAR is still lower than the long-term average (3.3) but marginally higher than the average for the previous five years (2.7).

Because of the small numbers, fatalities are not a reliable indicator of safety performance. It has been noted in previous reports that transport related accidents were a consistent feature in all years since the causes have been recorded. Companies were again asked to give a brief description of the causes of fatalities and these have been categorised as shown in **Table 3**. It can be seen that in 2001, in contrast to recent years, less than half (five) of the fatalities were caused by road accidents. Two workers died from falls and another was crushed by a turning excavator. Three workers were asphyxiated while working in a confined space and a fourth was poisoned by H_2S. One worker was scalded. The final fatal accident was to a company employee on a flight from Milan which collided on take-off with another aircraft. For the third year running, there were no fatalities resulting from fire incidents and therefore all were unrelated to the flammable nature of the materials handled.

Table 3 Causes of Fatalities in 2001.

	Manufacturing	Marketing	Combined	Percentage
Road Accident	0	5	5	36%
Falls / Crushed by Excavator	3	0	3	23%
Asphyxiation / Poison Gas	4	0	4	31%
Scalded	1	0	1	8%
Plane Crash	0	1	1	8%
Fire	0	0	0	0%
Total	8	6	14	

4. RESULTS FOR COMPANIES WHO HAVE REPORTED ALL YEARS

This is the ninth year that CONCAWE has collected data on the incidence of accidents in the downstream oil industry. Over the years, the number of companies responding to the survey first increased from 17 to 27 but since then has decreased to 19, largely because of mergers between CONCAWE Member Companies. These changes in the numbers of companies reporting has tended to obscure the improvement in the safety performance of those companies who have reported every year from the first survey who now number twelve.

The results for 2001 for these 12 companies are presented in **Table 4** and the summarised results for these same companies for the whole nine years of the survey in **Table 5**. The results show that all the performance indicators for these companies are lower than those calculated for all 19 companies (**Table 1**). What is more, there is a clear improvement over the years in nearly all the figures. This is shown more clearly in **Figure 16**. The picture for AIF is somewhat more complicated in that for this measure, the numbers increased from 1993 to 1995 but have reduced steadily since then, although this year, the AIF has increased to a level close to that for 1999 after a good year in 2000. It is believed that the initial increase was due to better reporting in these companies, but that the decrease since then is due to a real improvement in safety performance.

Table 4 2001 Results for those Twelve Companies Which Have Reported in All Years

Sector	Manufacturing			Marketing			Both Sectors		
Work Force	Own Staff	Contractor	All Workers	Own Staff	Contractor	All Workers	Own Staff	Contractor	All Workers
Total hours worked (million)	62	56	118	183	120	304	245	176	422
Number of fatalities	4	2	6	2	3	5	6	5	11
Number of LWIs	181	268	449	527	541	1,068	708	809	1,517
Total days lost through LWIs	3,863	5,380	9,243	10,477	6,593	17,070	14,340	11,973	26,313
Number of RWIs	50	86	136	257	190	447	307	276	583
Number of MTCs	243	283	526	173	262	435	416	545	961
AIF	8.3	15.7	11.6	5.6	8.1	6.6	5.3	10.4	8.0
LWIF	2.9	4.8	3.8	2.9	4.5	3.5	2.9	4.6	3.6
LWI Severity (Days/LWI)	25.1	24.8	24.9	27.6	17.5	22.6	26.9	20.2	23.4
Distance travelled (million km)									1039
Number of Road Accidents									867
Road Accident Rate									0.8

Table 5 Results for the 12 Companies which have reported in All Years

Year	FAR	LWIF	LWIS	AIF	RAR
1993	5.1	4.7	25.7	8.0	3.8
1994	5.6	4.0	24.4	8.3	3.1
1995	3.8	4.5	20.7	11.1	2.4
1996	3.7	4.1	19.5	9.6	2.0
1997	4.0	3.7	22.0	9.3	1.7
1998	2.9	3.6	24.0	8.1	1.1
1999	2.1	3.5	21.0	8.1	0.9
2000	3.1	3.5	26.8	6.1	0.8
2001	2.6	3.6	23.4	8.1	0.8
1993-2001 average	3.6	3.9	23.9	8.4	1.6

5. COMPARISON WITH OTHER SECTORS

It is interesting to compare the results of the CONCAWE survey with the results of other related industry sectors and all industry in the EU. Comparisons have previously been made with the results published by OGP (the HSE organisation for the upstream oil industry world-wide) and CEFIC (the European Chemicals Producers Association). Similar comparisons are made this year. The most recent year's data available from CEFIC is for 2000 [8] whereas data from OGP for 2001 [9] are available. Therefore the data for CEFIC should be compared with the CONCAWE 2000 figures and the OGP data compared with the CONCAWE figures for 2001 in **Table 7**. OGP publish regional breakdowns (apart from FAR) and both those for Europe and the whole world are presented here. These comparisons are only indicative as the reporting criteria, although similar are not identical.

Table 6 Comparison of CONCAWE Results (2000 and 2001) with those from OGP (2001) and CEFIC (2000) and whole EU (1998/9)

	CONCAWE 2001	OGP Europe	OGP World	CONCAWE 2000	CEFIC 2000	EU 1998/9
LWIF	4.3	2.5	1.6	4.3	9.9	22.9 (99)
FAR	2.8	na	5.1	2.7	0.7*	2.7 (98)
AIF	9.2	7.8	4.9	9.2	na	na
LWIS	24.0	25.4	24.7	25.5	na	na

Considering the LWIF figures, the figures for OGP companies who are involved in oil and gas exploration and production are somewhat lower than those reported by CONCAWE Member Companies for both Europe and the World. However, those reported by CEFIC are considerably higher. For fatalities, the differences are reversed with CEFIC reporting a lower figure than CONCAWE whereas those from OGP are higher. For AIF, the CONCAWE figures are slightly higher than those for OGP, both world-wide and Europe.

It is noteworthy that even in the oil and gas exploration and production business, OGP report that the most common cause of fatalities (28 %) was vehicle accidents. The proportion was even higher in the CONCAWE data (36 % in 2001). CEFIC do not publish a breakdown on the causes of fatalities.

Data have also been published for accidents at work in the EU as a whole [10]. These are also compared with the CONCAWE data in **Table 7**. These show that the LWIF for CONCAWE Member Companies is only about one fifth of the frequency for employment as a whole in the EU. However the FAR for 1998 are similar (2.7 for EU, 2.6 for CONCAWE Member Companies).

6. REFERENCES

1. CONCAWE (1996) European downstream oil industry safety performance. Statistical summary of reported incidents – 1993 & 1994. Report No. 1/96. Brussels: CONCAWE

2. CONCAWE (1996) European downstream oil industry safety performance. Statistical summary of reported incidents – 1995. Report No. 3/96. Brussels: CONCAWE

3. CONCAWE (1997) European downstream oil industry safety performance. Statistical summary of reported incidents – 1996. Report No. 4/97. Brussels: CONCAWE

4. CONCAWE (1998) European downstream oil industry safety performance. Statistical summary of reported incidents – 1997 and overview 1993 to 1997. Report No. 4/98. Brussels: CONCAWE

5. CONCAWE (1999) European downstream oil industry safety performance. Statistical summary of reported incidents – 1998. Report No. 1/99. Brussels: CONCAWE

6. CONCAWE (2000) European downstream oil industry safety performance. Statistical summary of reported incidents – 1999. Report No. 1/00. Brussels: CONCAWE

7. CONCAWE (2001) European downstream oil industry safety performance. Statistical summary of reported incidents – 2000. Report No. 3/01. Brussels: CONCAWE

8. CEFIC (2002) Responsible care status report Europe 2001. Brussels: Conseil Européen des Fédérations de l'Industrie Chimique

9. OGP (2002) Safety performance of the global E&P industry 2001. Report No. 6.59/330. London: International Association of Oil & Gas Producers

10. EU (2001) Accidents at work in the EU 1998-1999 – Statistics in focus, theme 3 'Population and social conditions'. Report No. 16/2001. Luxembourg: Eurostat

APPENDIX 1 EUROPEAN OIL INDUSTRY STATISTICS DEFINITIONS AND GUIDING NOTES

1. Hours worked	Hours worked by employees and contractors. Estimates should be used where contractor data is not available.
2. Fatality	This is a death resulting from a work related injury where the injured person dies within twelve months of the injury.
3. LWI	Lost Workday Injury is a work related injury that causes the injured person to be away from work for at least one normal shift because he is unfit to perform any duties.
4. Total days lost	The number of calendar days lost through LWIs counting from the day after the injury occurred.
5. RWI	Restricted Workday Injury is a work related injury which causes the injured person to be assigned to other work on a temporary basis or to work his normal job less than full time or to work at his normal job without undertaking all the normal duties.
6. MTC	Medical Treatment Case is a work related injury which requires the attention of a medical practitioner. It excludes first aid treatment.
7. AIF	All Injury Frequency which is calculated from the sum of fatalities, LWIs, RWIs and MTCs divided by number of hours worked expressed in millions.
8. LWIF	Lost Workday Injury Frequency is calculated from the number of LWIs divided by the number of hours worked expressed in millions.
9. LWIS	Lost Workday Injury Severity is the total number of days lost as a result of LWIs divided by the number of LWIs.
10. Distance travelled	This is the distance, expressed in millions of kilometres, covered by company owned delivery vehicles and company cars whether leased or owned. It should also include kilometres travelled in employee's cars when on company business.
11. Road Accidents	Any accident involving any of the vehicles described above.
12. RAR	Road Accident Rate is calculated from the number of accidents divided by the kilometres travelled expressed in millions.
13. FAR	Fatal Accident rate is calculated from the number of fatalities divided by the number of hours worked expressed in hundred millions.

Statistics to be collected under two groupings : Refineries and Marketing.

Marketing includes all non refining activities including "Head Office" personnel.

Where data is not available the best estimate possible should be made.

APPENDIX 2 GRAPHS SHOWING SPREAD OF DATA

Figure 1 LWIF for Company Employees in European Oil Industry (Both Sectors)

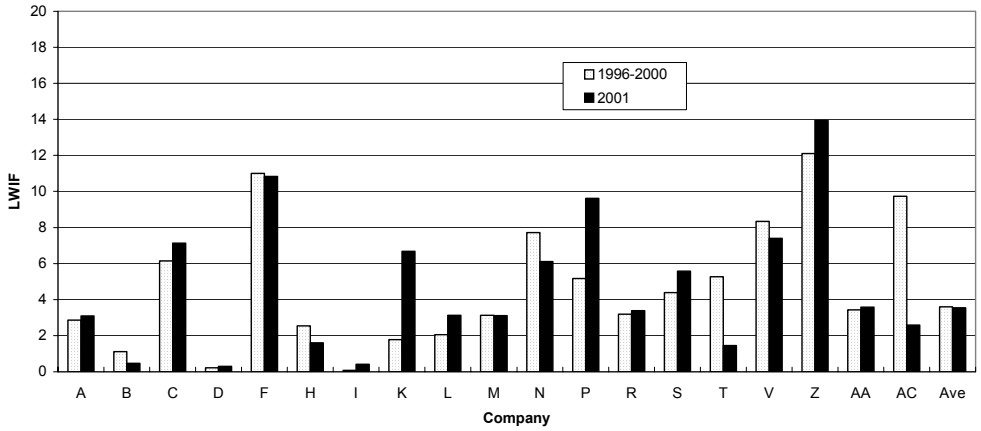


Figure 2 LWIF for Company Employees in European Oil Industry (Manufacturing)

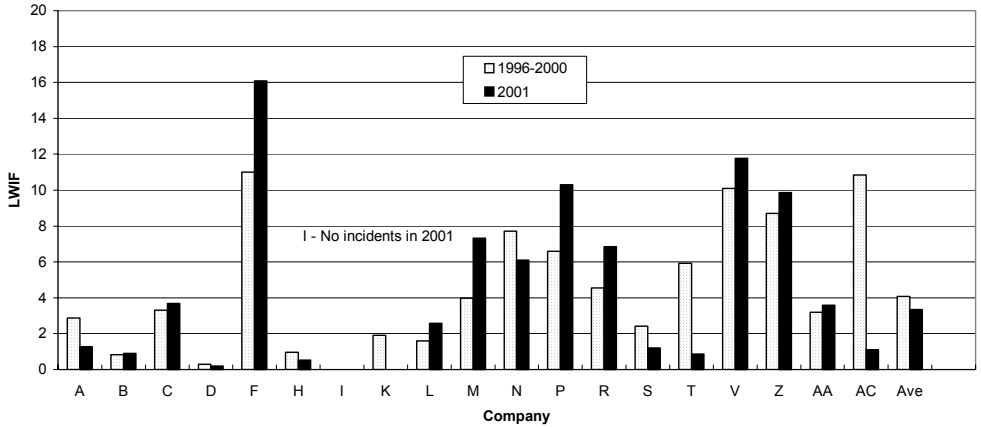


Figure 3 LWIF for Company Employees in European Oil Industry (Marketing)

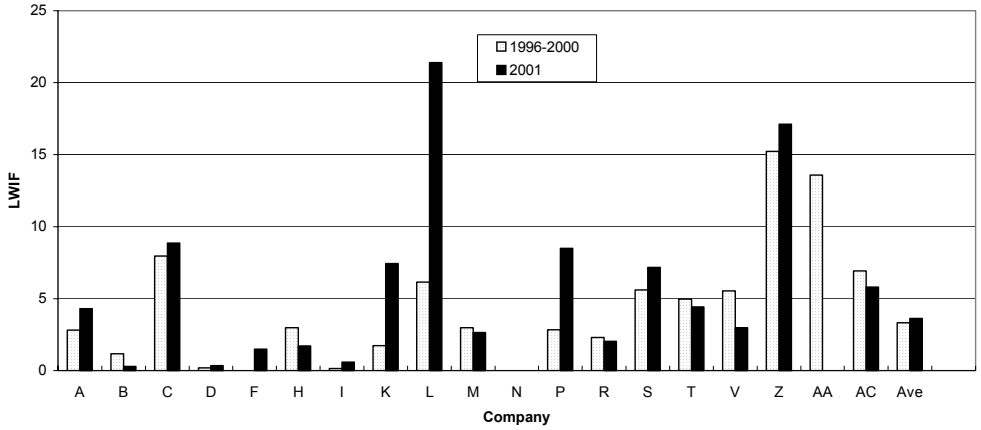


Figure 4 AIF* for Company Employees in European Oil Industry (Both Sectors)

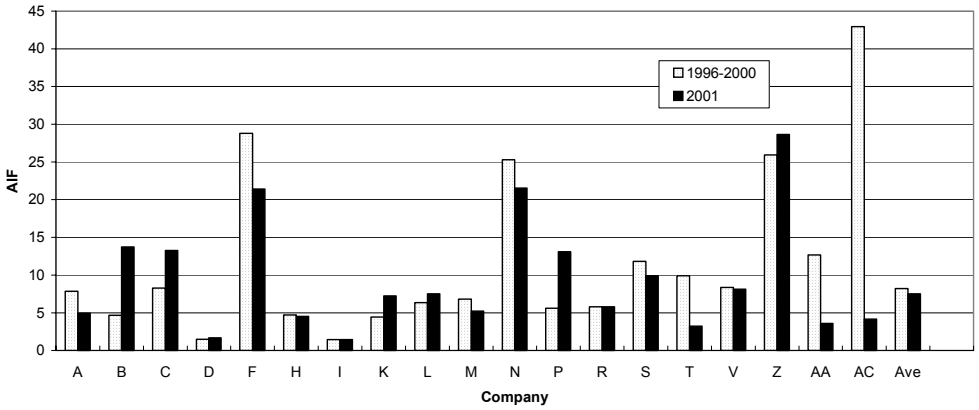


Figure 5 AIF* for Company Employees in European Oil Industry (Manufacturing)

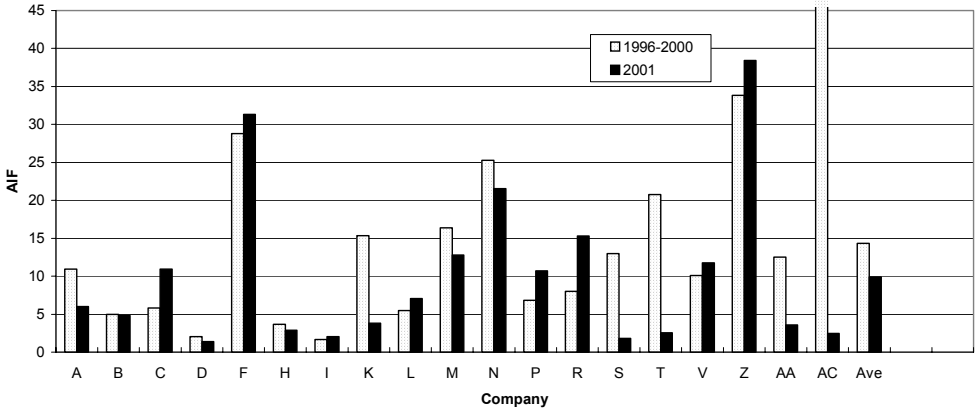
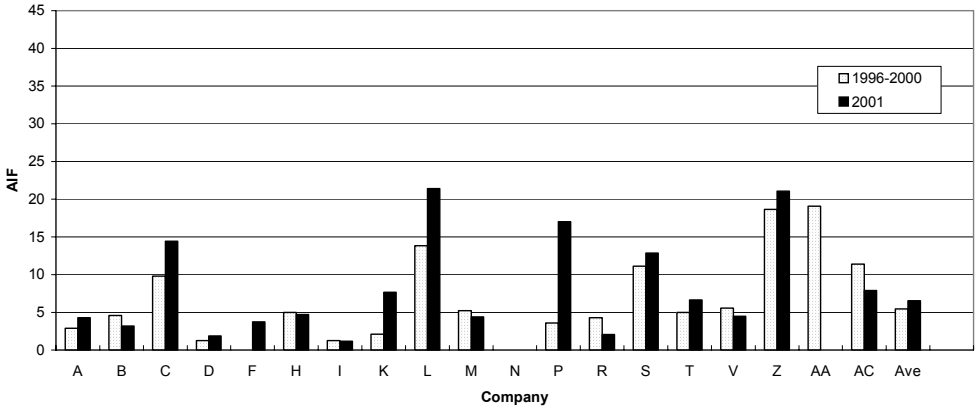


Figure 6 AIF* for Company Employees in European Oil Industry (Marketing)



* Note that in these figures an AIF is recorded even if the company did not report any RWI or MTC. In these cases, the AIF is the same as the LWIF.

Figure 7 LWIF for Contractors in European Oil Industry (Both Sectors)

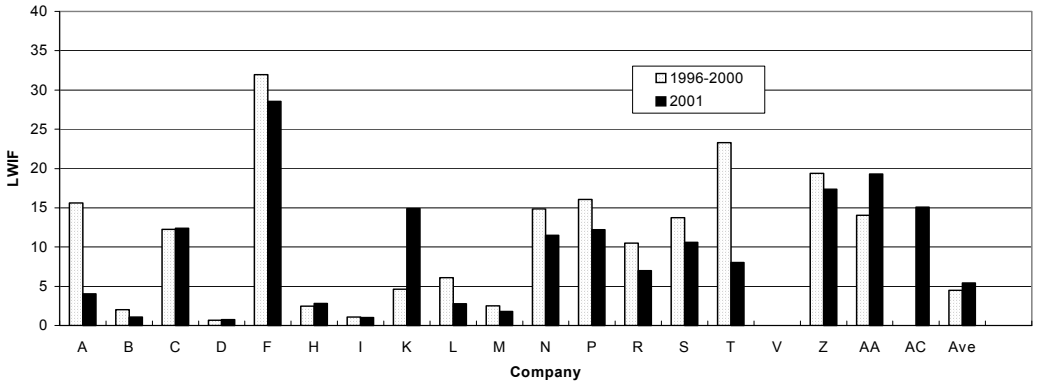


Figure 8 LWIF for Contractors in European Oil Industry (Manufacturing)

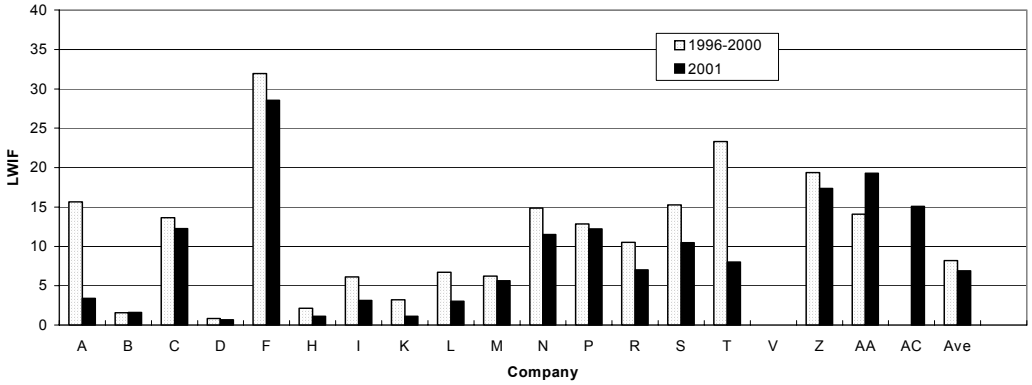


Figure 9 LWIF for Contractors in European Oil Industry (Marketing)

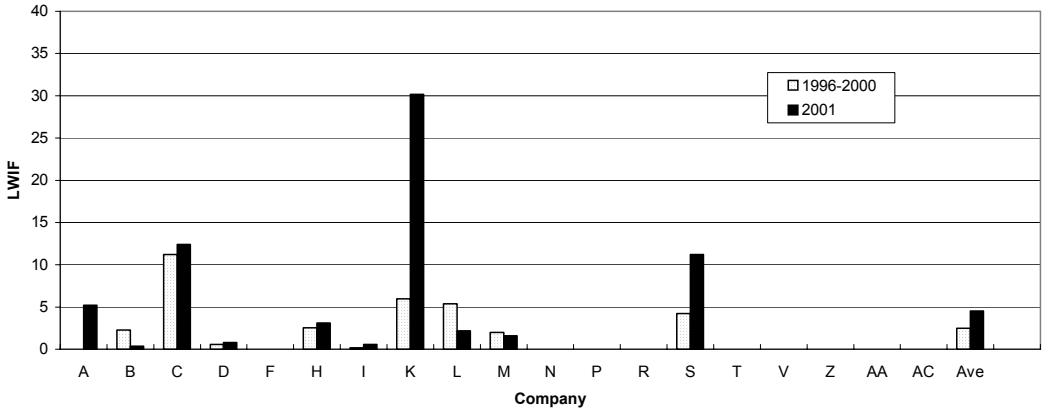


Figure 10 AIF* for Contractors in European Oil Industry (Both Sectors)

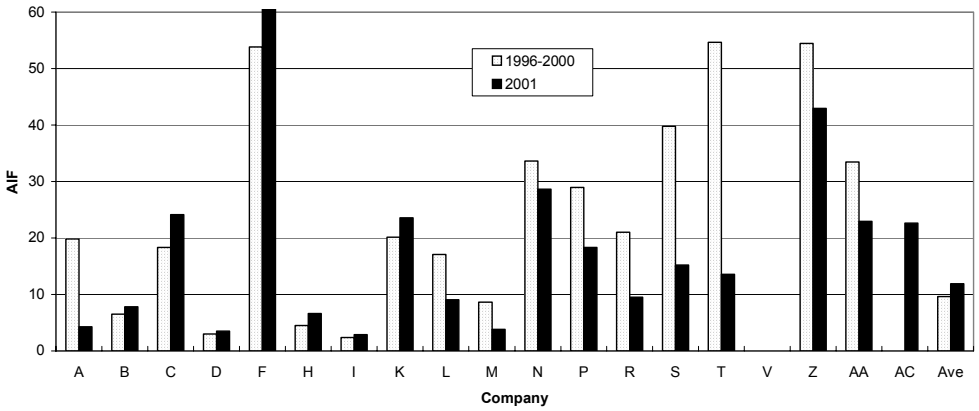


Figure 11 AIF* for Contractors in European Oil Industry (Manufacturing)

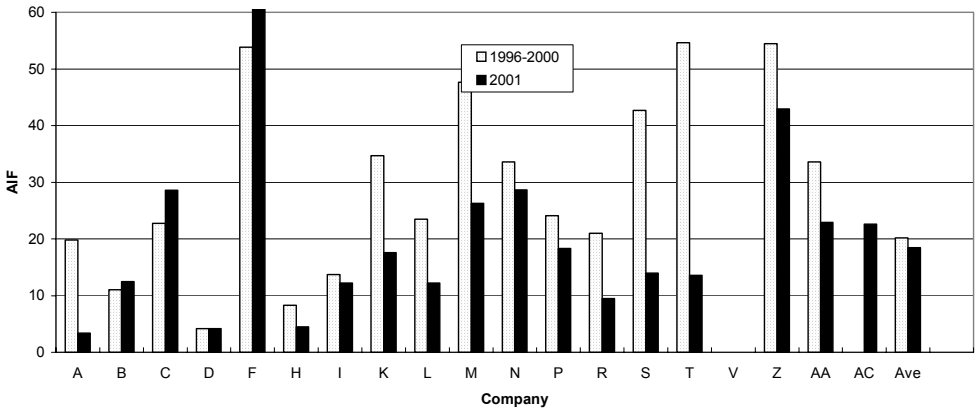
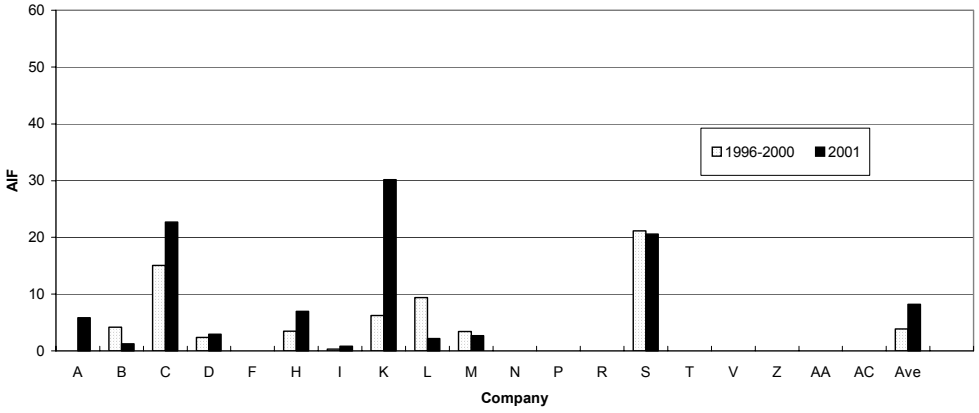


Figure 12 AIF* for Contractors in European Oil Industry (Marketing)



* Note that in these figures an AIF is recorded even if the company did not report any RWI or MTC. In these cases, the AIF is the same as the LWIF.

Figure 13 LWIS for Employees in European Oil Industry (Both Sectors*)*
(Days Lost per Incident)

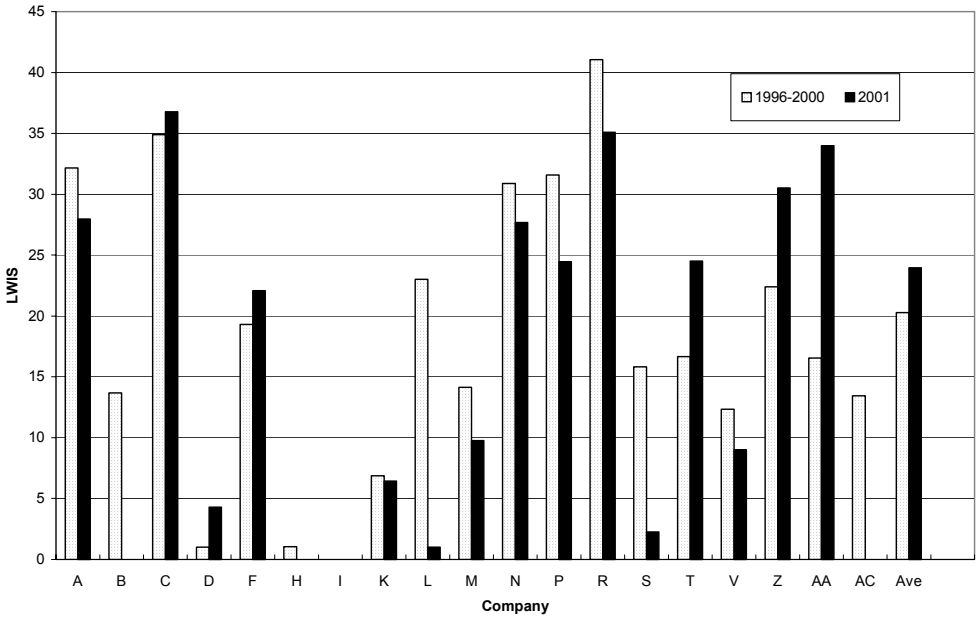


Figure 14 Road Accident Rate
(Accidents per Million Kilometres)

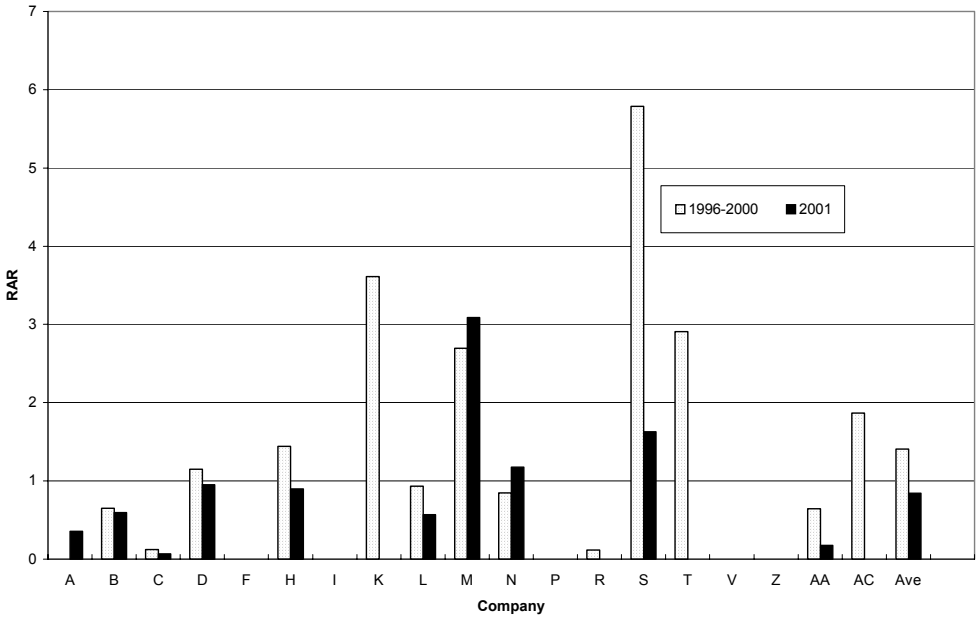


Figure 15 Fatalities for All Workers in European Oil Industry (Both Sectors)

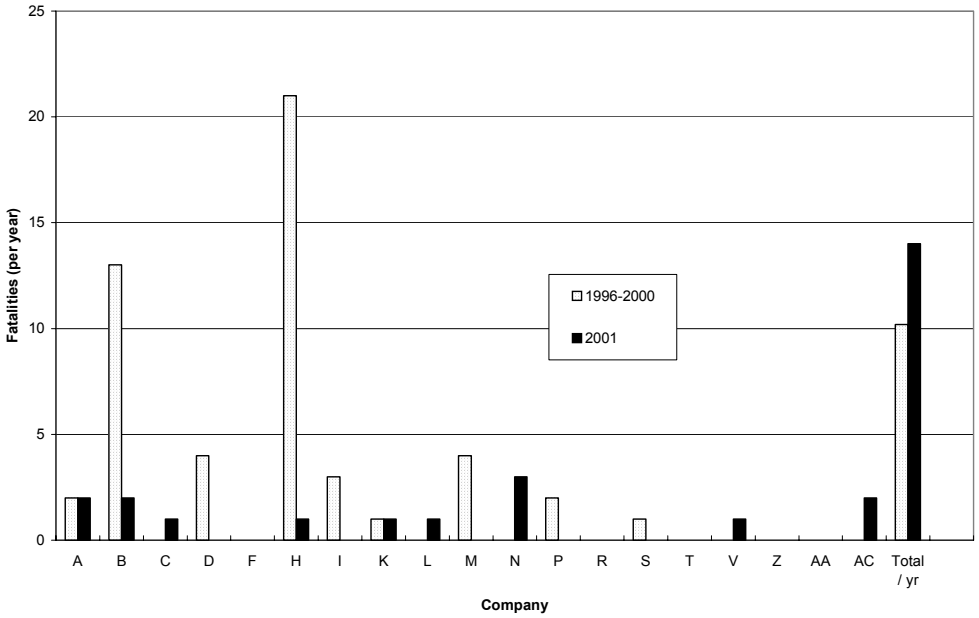


Figure 16 Eight Year Data (1993-2000) for Companies which have Reported in All Years of the Survey.