SEPTEMBER 2007

REGIONAL ASSOCIATION OF OIL AND NATURAL GAS COMPANIES IN LATIN AMERICA AND THE CARIBBEAN

STATISTICS ON INCIDENTS IN THE OIL AND GAS INDUSTRY IN LATIN AMERICA AND THE CARIBBEAN

2006 STATISTICS FOR ARPEL MEMBER COMPANIES

ARPEL REPORT

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ARPEL, September 2007

ARPEL
Report on Statistics on Incidents in the Oil and Gas Industry in Latin America and the Caribbean –2006 Statistics for ARPEL Member Companies
ARPELOH&S Report No.24 – 2007
September 2007

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1.0 EXECUTIVE SUMMARY

One of the activities of the Occupational Health and Safety Working Group of the Regional Association of Oil and Natural Gas Companies in Latin America and the Caribbean (ARPEL) is focused on the ARPEL initiative to gather information about occupational injuries, illnesses and fatalities in the oil industry in Latin America and the Caribbean.

In this sense, this report represents the tenth annual compilation of information related to occupational injuries, illnesses and fatalities for ARPEL Member Companies. The objective of this report is to contribute to eradicate damage to people and facilities from the oil industry activities. This document provides a comparative analysis of the occupational health and safety performance of the oil industry for those ARPEL Member Companies participating in this report. Comparisons with ARPEL data gathered in previous studies since 1997 up to present, as well as with some of the results reported in the OGP[1] Report N° 391 about Safety Performance Indicators for the year 2006, are also included in this report.

Four reactive indicators are analyzed in this report, considering the *total of incidents*, their *gravity* and *frequency*, and the *fatal incidents*. Compiled data corresponds to workers of the companies and contractors in a discriminated way, and a "combined" result for workers of the company and contractors together is provided as well. These four indicators are first analyzed considering both the activities onshore and offshore together, and then a specific analysis of offshore activities is included as well. Apart from analyzing data at the oil industry level, reactive indicators are also analyzed by comparing among each individual ARPEL participating company for the year 2006 (keeping confidentiality).

Two proactive indicators are also analyzed in this report: *Safety Task Planned Observations* and *Safety Training Intensity*, both for the company workers only. All main sectors of the oil industry are included in this report, gathered within five categories for the sake of data analysis: Exploration and Production, Refining, Transport[2], Distribution[3] and Others. Definitions of the functions utilized in the figures of the following chapters correspond to the ARPEL User's Manual, 4th Edition (2004). Fatality causes are also

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[1] *International Association of Oil and Gas Producers*

[2] ***Definition of Transport:*** *Gathering system and trunk line operations for crude oil. Transportation via pipeline of refined and semi refined products. Pipeline station operations. Operations associated with the use of trucks to transport crude oil between functions. If the trucks are an integral part of another function, they should be covered in that function, not here. Gas gathering and trunk line operations of natural gas transmission lines up to the point of retail distribution. Marine operations as defined below:* ***Ships:*** *Includes vessels that are owned, operated, and manned under petroleum company supervision. This may include vessels on coastal or transoceanic trips, including international runs. Includes exceptional circumstance of a "bare boat" charter where the vessel is chartered but the petroleum company provides the crew. Does not include "straight charter" vessels where both crew and vessel are hired for specific runs.* ***Personnel:*** *In addition to seagoing employees or contractors, includes land-based marine operations people assigned to marine tanker operations. Some companies use personnel from national unions who are assigned to particular runs and are supervised and paid by the companies while on the run. Injuries and work hours for such personnel should be included. Marine personnel injuries should be reported by the same OSHA definitions or the country legislation (if applicable) as those used for other employees to allow comparability with other functions.*
Inland waterway tank ship and barge operations and their associated portion of land-based marine operations.

[3] ***Definition of Distribution:*** *Petroleum bulk stations and terminals. Bulk distribution of petroleum products to retail or wholesale outlets, including truck and transport deliveries. Bulk distribution of tires, batteries, accessories and other products sold at service stations. Operations at product terminals or wholesaling establishments. Administrative, marketing, and sales activities that are integral to marketing-wholesale are included. Credit card operations or petrochemical marketing/sales/distribution are not included here; they are included in the Other category. On-site retail service station and associated convenience store operations. This includes driveway sales, road service operations, car wash services, vehicle repair work, and sales of miscellaneous merchandise. Field or district personnel who supervise these stations should be reported under this category, as should other marketing administrative services.*

analyzed, both for the year 2006 and compared to previous years. Thirteen ARPEL Member Companies reported Contractors data and five reported data on offshore activities, out of sixteen Member Companies that reported data for the year 2006.

Table 1.0: List of the companies that provided data to the 2006 Study on Incidents Statistics in the Oil and Gas Industry in Latin America and the Caribbean.

ANCAP	PETROBRAS
Chevron	PETROECUADOR
ECOPETROL	PETROPERU
ENAP	PETROTRIN
Pan American Energy	RECOPE
PCJ	RepsolYPF
PDVSA	STAATSOLIE
PEMEX	TOTAL

1.1 Selected results for the year 2006

- The total Hours Worked (in thousands) reported in this report is of 1,613,893, considering both Company Workers and Contractors, and corresponds to 16 Member Companies.
- The Total Incidents Rate (for all functional units), combining companies and contractors, was of 0.734 incidents by 200,000 hours worked (Companies only: 0.574. Contractors only: 0.846). The function with the largest number of incidents was “Transport” for Contractors, with 1.486 incidents by 200,000 hours worked.
- On average for all functional units, the workers of the Company lost 12.06 days by 200,000 hours worked, compared to 13.05 lost workdays by Contractors. As in the two previous years (2004 and 2005), “Refining” (considering Contractors) was the functional unit that lost more workdays, with 23.77 lost workdays by 200,000 hours worked.
- The Incidents’ Frequency Rate with lost workdays, considering all functional units combined (Company and Contractors), corresponds to 0.405 lost workdays cases by 200,000 hours. (Companies only: 0.463. Contractors only: 0.363)
- The oil sector that recorded the largest number of fatalities in 2006 was “Refining” for Contractors, with 0.021 fatalities by 200,000 hours worked. This value corresponds to three times the value for all functional units combined (Company + Contractors): 0.007 fatalities by 200,000 hours worked.
- None of the Companies that participated in this report recorded fatalities in “Transport” for Contractors and “Distribution” for the workers of the Company during 2006.
- The workers of the Company performed better than Contractors regarding the Fatal Incidents’ Rate. On average, the value of the Fatal Incidents’ Rate for Contractors triples the value for the workers of the Company (Contractors Average: 0.009 fatalities by 200,000 hours worked, Company Average: 0.003 fatalities by 200,000 hours worked)
- Fatalities in 2006 were mainly caused by “Fires and Explosions”, causing the 25% of fatalities considering both the workers of the company and contractors.
- Being this the fourth year in which safety proactive indicators are included in the incidents

statistics, nine companies reported data for the Task Planned Observations Rate and ten for the Safety Training Intensity Rate.

- During 2006, 1.15 task planned observations were done by employee of the company considering all functional units. Moreover, "Transport" was the functional unit trained on safety for the largest number of hours (2.54 training hours by 100 hours worked during 2006).

1.2 Selected comparative results for the term 1997/2006

- In spite of the fact that the number of companies that reported data for this report is lower than in 2005 (16 versus 17), the total number of reported hours worked is the largest ever recorded.
- The Total Incidents' Rate (that includes illnesses, injuries, and fatalities) showed a decreasing general tendency for the first years, however, in the last three years it seems to have reverted to the opposite tendency both considering the workers of the Company and Contractors for most of the functional units. Thus – on average for all functional units – the lowest values of this rate throughout the ten years correspond to the period going from 2002 to 2004, for the workers of the company and contractors.
- The number of lost workdays in 2006 is lower than in 2005 for all functional units, and both for the workers of the company and contractors. Moreover, considering the average value of all functional units, the number of lost workdays in 2006 is the lowest ever recorded both for the workers of the company and contractors.
- The average value of all functional units of the Incidents´ Frequency Rate with lost workdays considering contractors shows a decreasing tendency for the term 1997-2006. However, its value in 2005 increased almost 100% compared to 2004. The average value of all functional units in the case of the workers of the company does not show any tendency at all.
- In the year 2006, the number of fatalities recorded by 200,000 hours worked for the total of the functional units reached the lowest value ever recorded in the ten years term considered, both for the workers of the company and contractors. So happens with "Transport", "Exploration and Production", and "Others", for the workers of the company and contractors combined. Moreover, the number of fatalities caused by car accidents has decreased with respect to previous years, reaching the lowest percentage recorded for the period 2001-2006.
- Offshore activities recorded the lowest values of the Incidents' Gravity Rate and the Incidents' Frequency Rate for the combination of the workers of the company and contractors all along the period considered.
- Considering both proactive rates (Task Planned Observations Rate and Safety Training Intensity Rate), the value for all functional units in 2006 decreased with respect to previous years. In the case of the Safety Training Intensity Rate, such decrease applies to all functional units except for "Transport". However, in the case of the Task Planned Observations Rate, the 2006 value is larger than in previous years for "Transport" and "Others".
- Following there is a graphic showing the total reported Hours Worked (in thousands, for the combined result of the workers of the Company and Contractors, and including onshore and offshore activities), and the number of Member Companies that participated in each year's reports for the term 1997-2006.

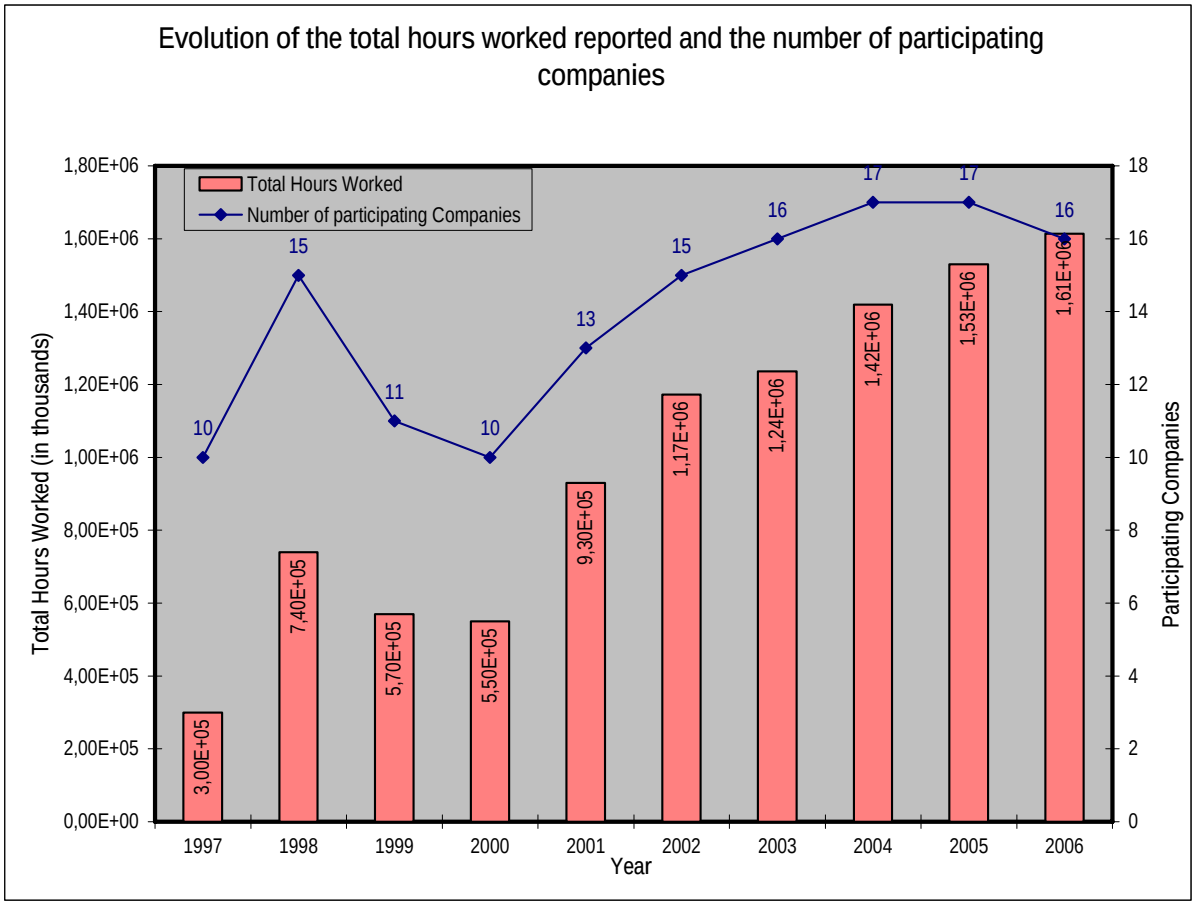
Evolution of the total hours worked reported and the number of participating companies
Total Hours Worked
Number of participating Companies
Total Hours Worked (in thousands)
Participating Companies
Year
1,80E+06
1,60E+06
1,40E+06
1,20E+06
1,00E+06
8,00E+05
6,00E+05
4,00E+05
2,00E+05
0,00E+00
18
16
14
12
10
8
6
4
2
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
3,00E+05
7,40E+05
5,70E+05
5,50E+05
9,30E+05
1,17E+06
1,24E+06
1,42E+06
1,53E+06
1,61E+06
10
15
11
10
13
15
16
17
17
16

Figure 1.2

2.0 REACTIVE INDICATORS – onshore and offshore activities

2.0 Explanatory notes

Unless the contrary is specified, all incidents´ rates are reported as "incidents by 200.000 hours worked". For brevity's sake, only a numeric value is provided and units are as mentioned before.

In some cases the sum of values for the individual categories might not match exactly the value reported for the "Total". This occurs because the displayed value was rounded to the closest integer for each of the individual values and the "Total" was calculated adding the real values (not rounded) and also rounded to the closest integer to be displayed in the report.

Not all companies reported data required to calculate all indicators. For this reason, and for each indicator, only those companies that reported all data corresponding to the specific indicator were considered to calculate it. The total hours worked reported in tables 9.1 to 9.4 (APPENDIX B) not always matches the value used to calculate the rates. The total Hours Worked effectively utilized to calculate each indicator is noted in each case.

For the year 2006, one of the companies reported "Transport" and "Distribution" included under "Exploration and Production" and "Refining". For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

2.1 Total incidents' rate (by functional unit); data for the year 2006

The Total incidents' rate is defined through the following formula:

$$\text{Total incidents' rate} = \frac{\text{Total recordable cases} \times 200}{\text{Thousand hours worked}}$$

(Please refer to Chapters 6.0 and 10.0 in the User's Manual)

Function	Number of companies that reported data related to this indicator	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this indicator (company and contractors) – in thousands
Exploration and Production	11	766,369	766,369
Refining	12	383,624	383,314
Transport	7	77,999	77,941
Distribution	8	56,681	56,681
Others	9	329,221	328,964
Total	16	1,613,893	1,613,583

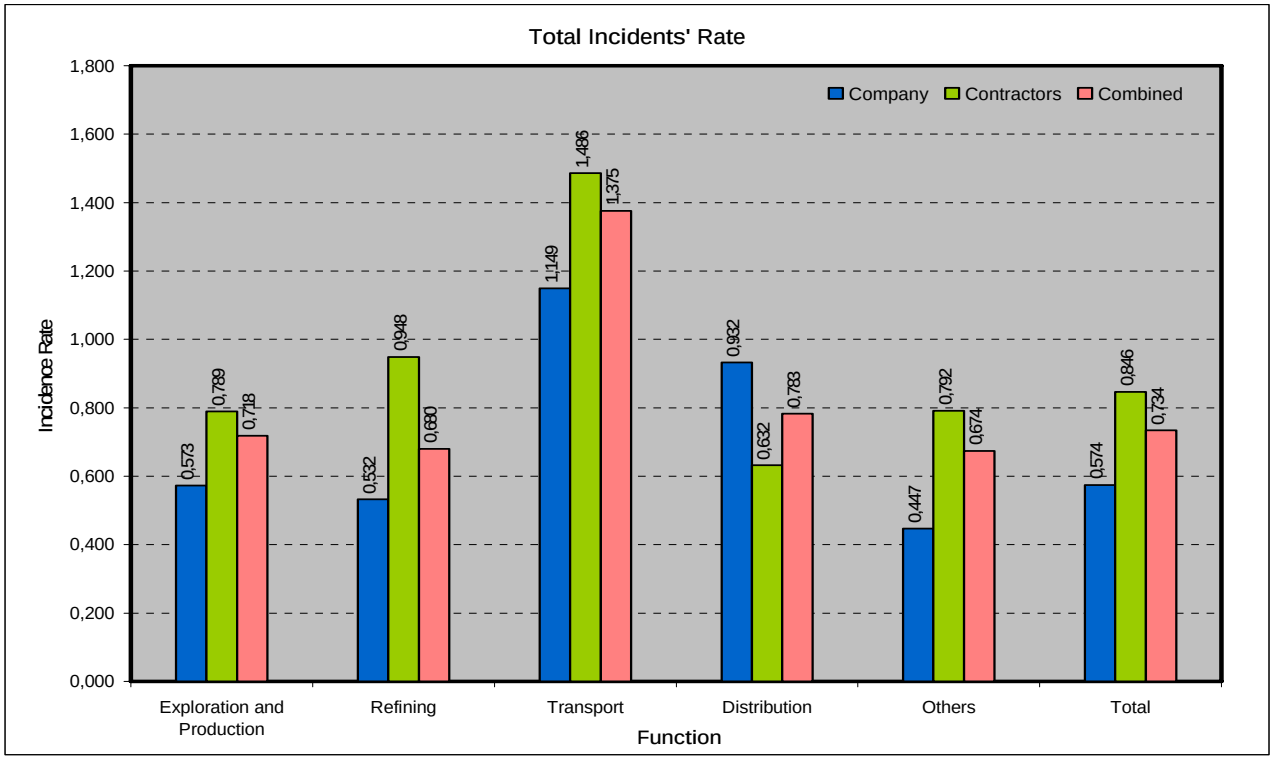

Figure 2.1

2.2 Evolution of the total incidents' rate (by functional unit)

2.2.1 Company data

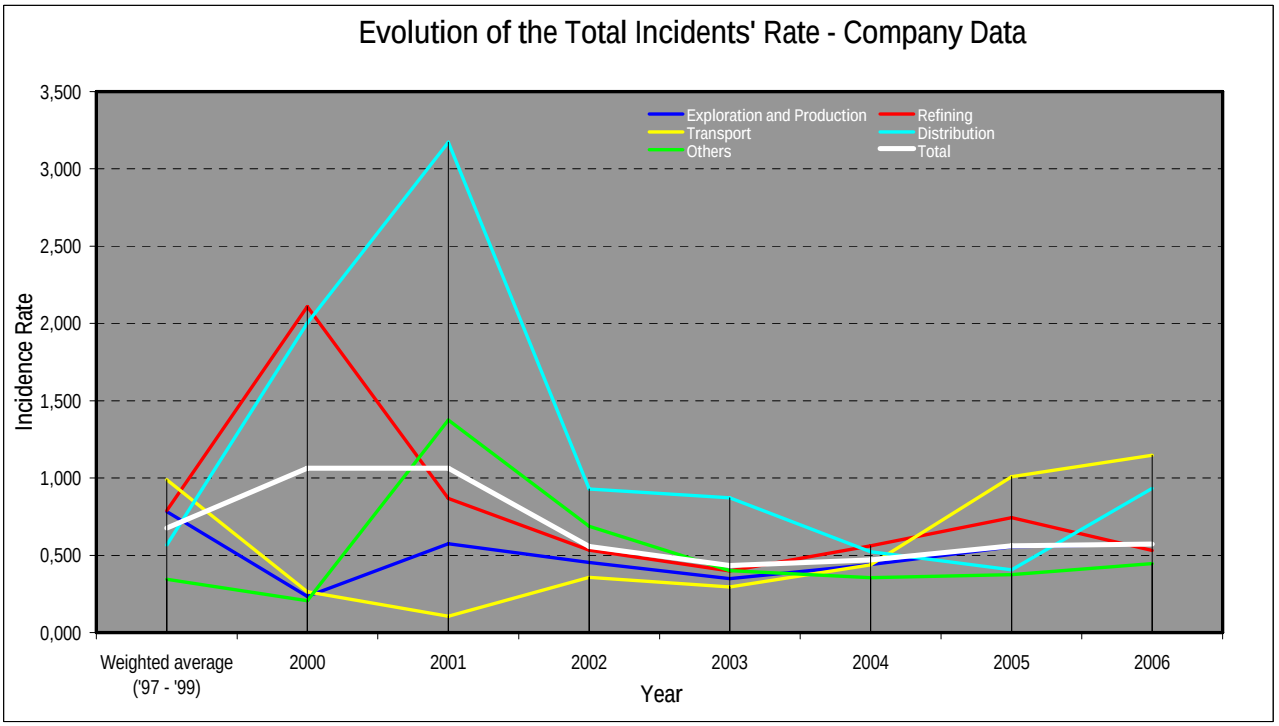

Figure 2.2.1

2.2.2 Contractors data

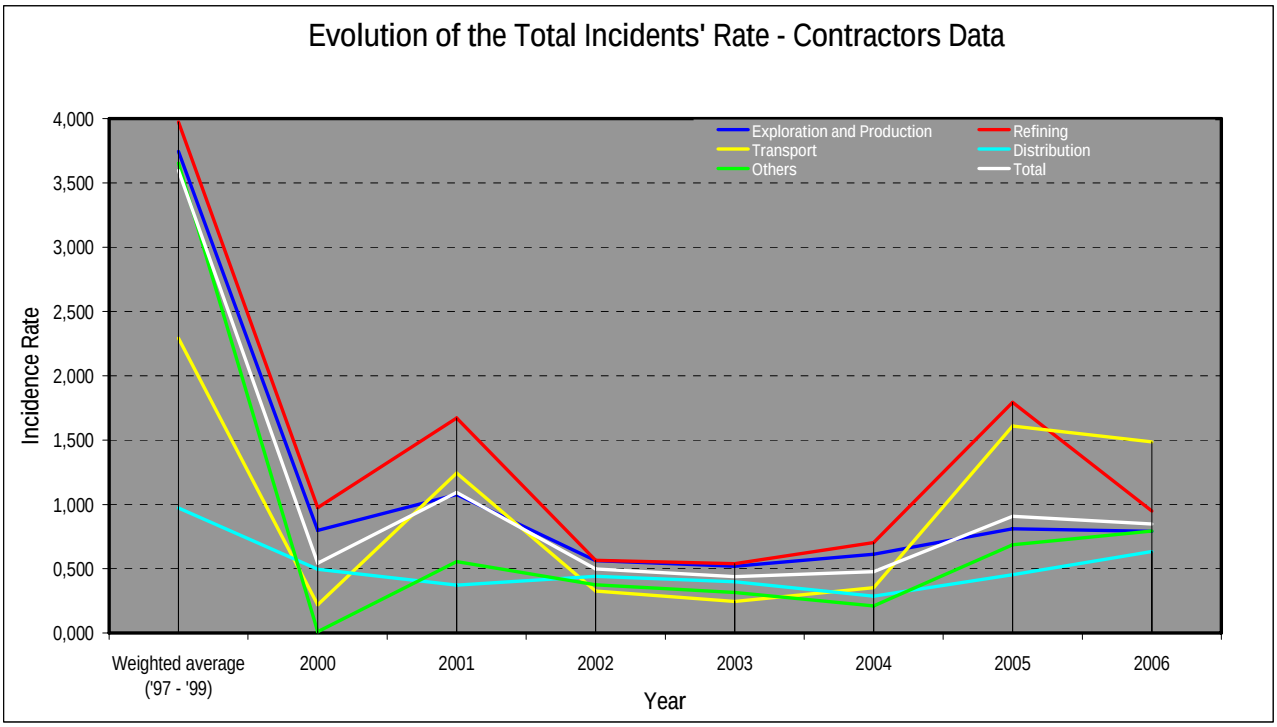

Figure 2.2.2

2.2.3 Combined data

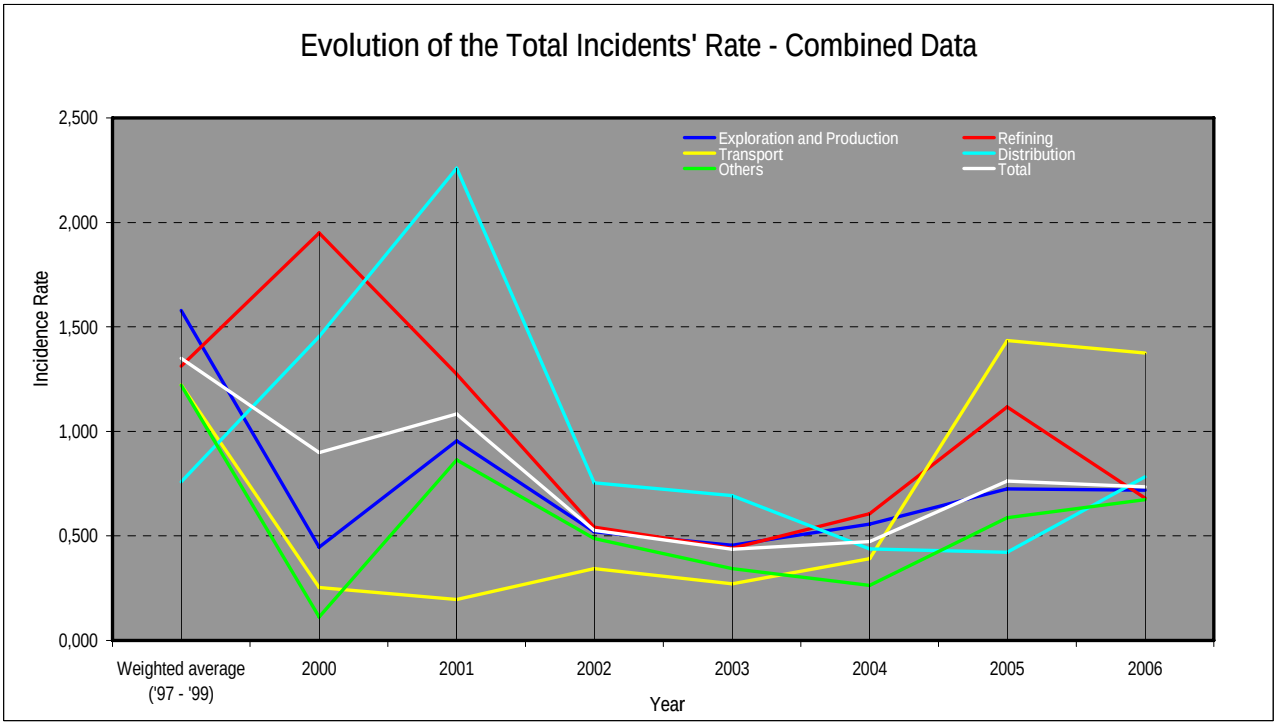

Figure 2.2.3

Figures 2.2.1 to 2.2.3 show the results for the workers of the company, contractors and combined respectively, for the total incidents' rate for the term 1997/2006. The corresponding tabulated results are shown in APPENDIX A.

The “Total” combined (figure 2.2.3) represents data reported by the following number of companies according to each year:

	Number of companies that reported data	
Year	For this indicator	For the Statistic
1997	10	10
1998	15	15
1999	11	11
2000	10	10
2001	11	13
2002	15	15
2003	16	16
2004	17	17
2005	17	17
2006	16	16

2.3 Incidents' gravity rate (by functional unit); data for the year 2006

The incidents' gravity rate is defined by the following formula:

$$\text{Incidents' gravity rate} = \frac{\text{Number of days away from work} \times 200}{\text{Hours worked in thousands}}$$

(Please refer to Chapters 6.0 and 10.0 in the User's Manual)

Function	Number of companies that reported data related to this indicator	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this indicator (company and contractors) – in thousands
Exploration and Production	9	766,369	584,198
Refining	10	383,624	282,186
Transport	6	77,999	31,297
Distribution	8	56,681	49,330
Others	8	329,221	115,416
Total	14	1,613,893	1,105,654

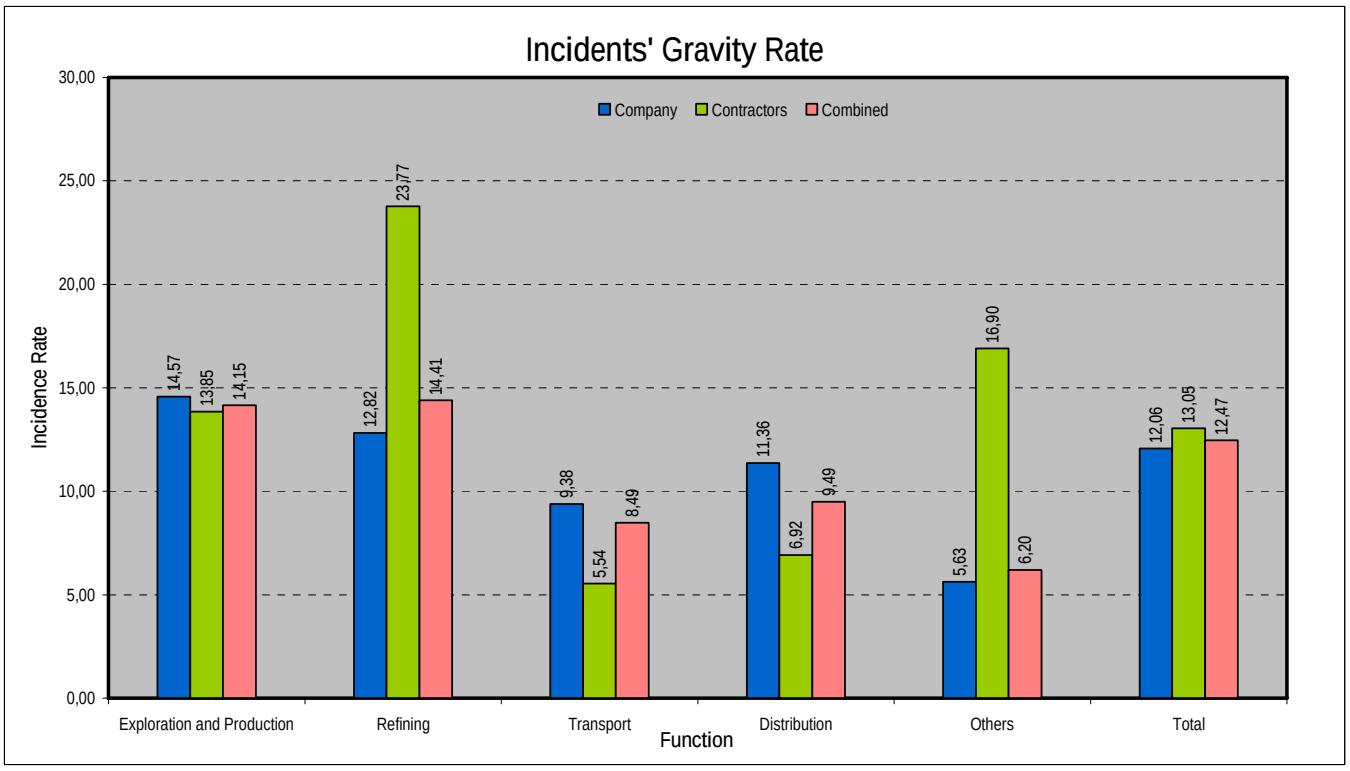

Figure 2.3

2.4 Evolution of the incidents' gravity rate (by functional unit)

2.4.1 Company data

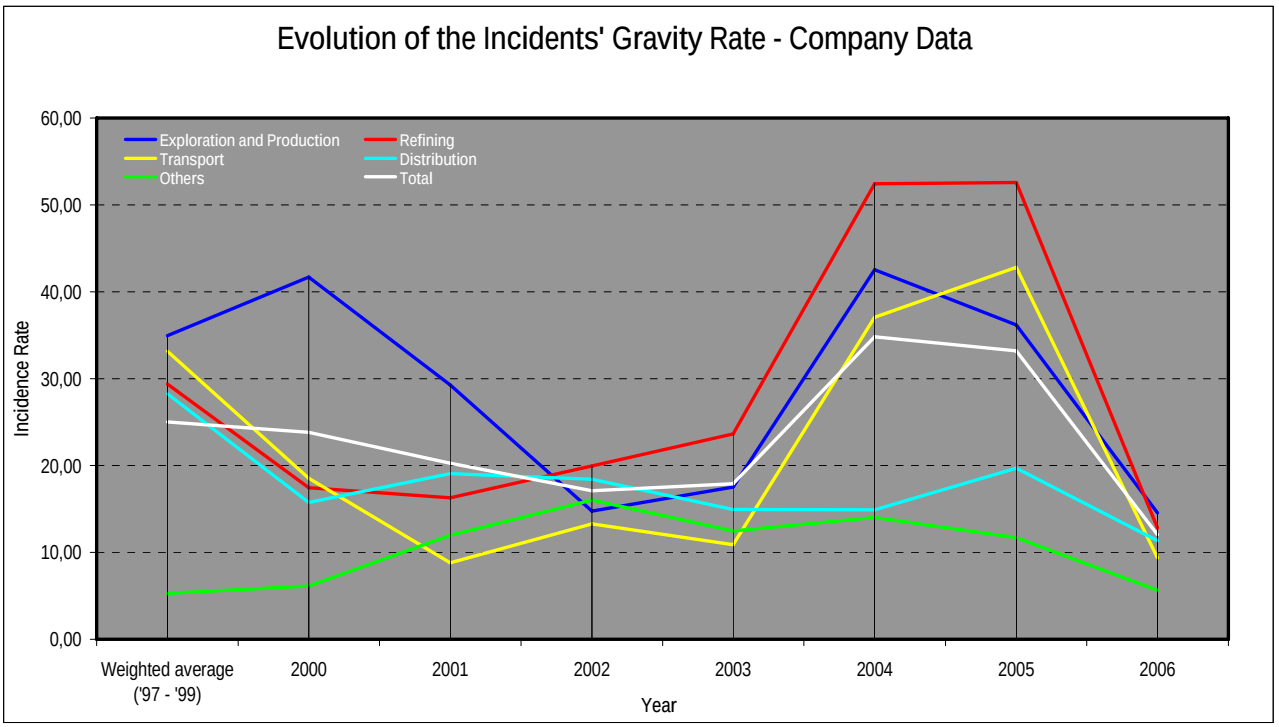

Figure 2.4.1

2.4.2. Contractors data

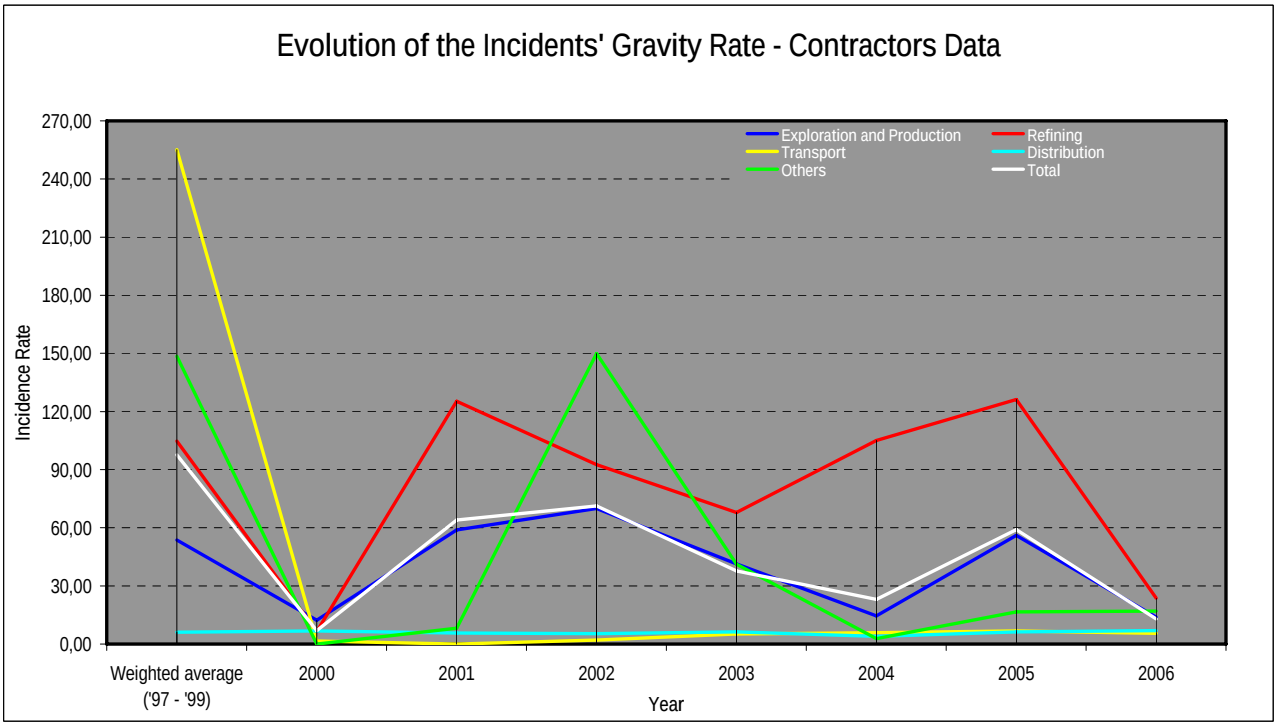

Figure 2.4.2

2.4.3 Combined data

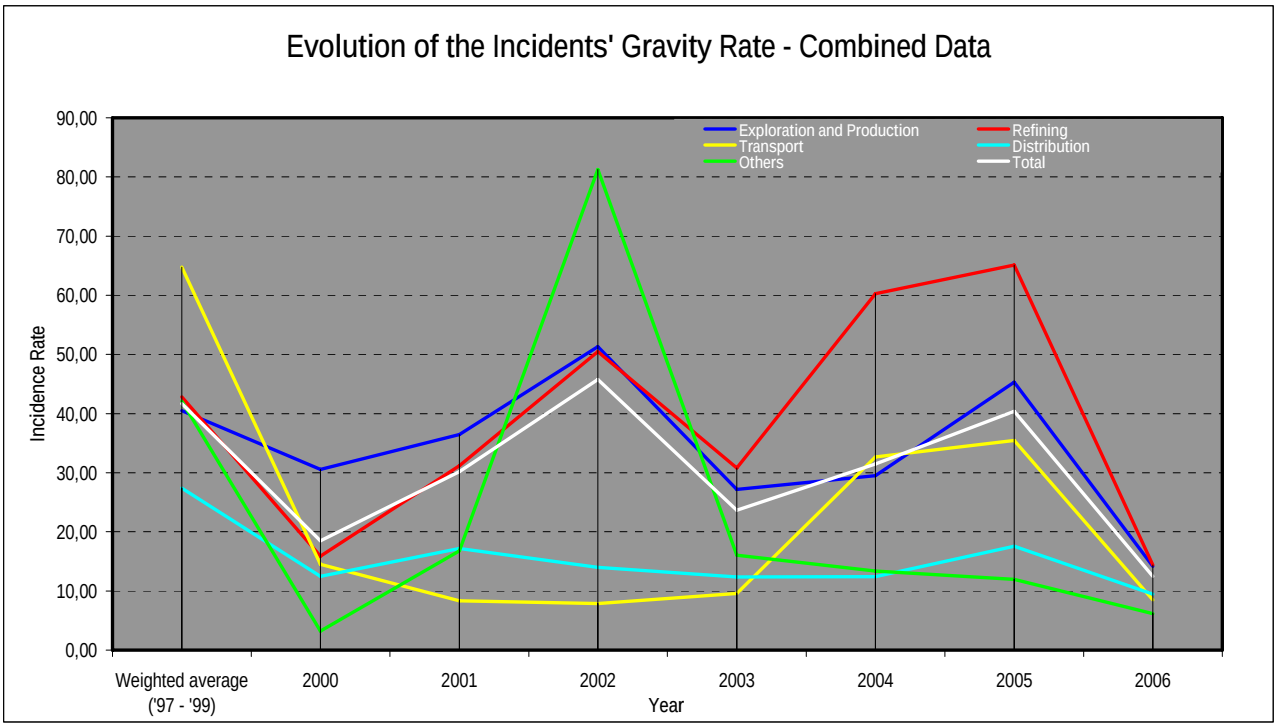

Figure 2.4.3

Figures 2.4.1 to 2.4.3 represent the results of the incidents' gravity rate, for the workers of the company, contractors and combined respectively, for the term 1997/2006. The tabulated results corresponding to the ten years are shown in APPENDIX A.

The "Total" combined (figure 2.4.3) represents data reported by the following number of companies according to each year:

	Number of companies that reported data:	
Year	For this rate	For the Global Statistic
1997	10	10
1998	15	15
1999	10	11
2000	10	10
2001	12	13
2002	13	15
2003	15	16
2004	17	17
2005	15	17
2006	14	16

2.5 Incidents' frequency rate with lost workdays (by functional unit); data for the year 2006

The incidents' frequency rate with lost workdays is defined by the following formula:

$$\text{Incidents' frequency rate with lost workdays} = \frac{\text{Lost workday cases} \times 200}{\text{Hours worked in thousands}}$$

(Please refer to Chapters 6.0 and 10.0 in the User's Manual)

Function	Number of companies that reported data related to this rate	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this rate (company and contractors) – in thousands
Exploration and Production	9	766,369	746,389
Refining	10	383,624	367,736
Transport	6	77,999	69,642
Distribution	8	56,681	56,681
Others	8	329,221	323,502
Total	14	1,613,893	1,564,924

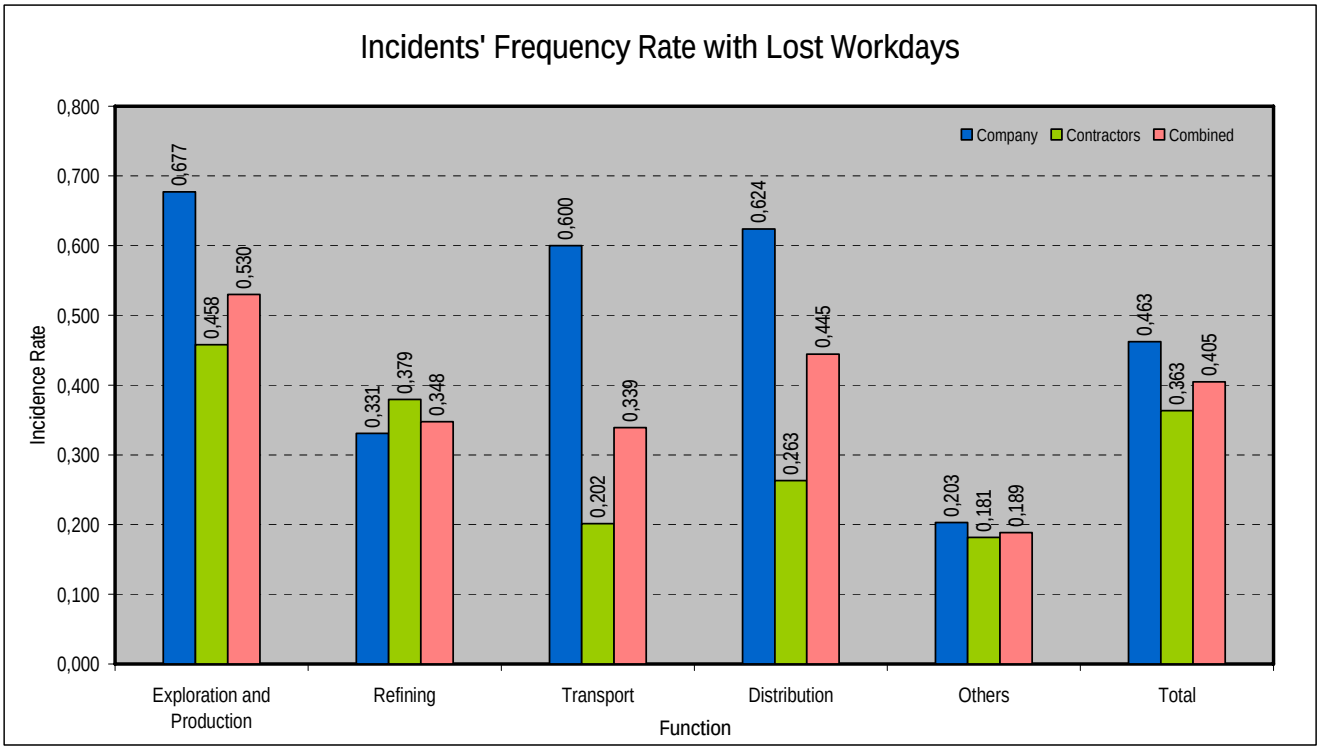

Figure 2.5

2.6 Evolution of the incidents' frequency rate with lost workdays (by functional unit)

2.6.1 Company data

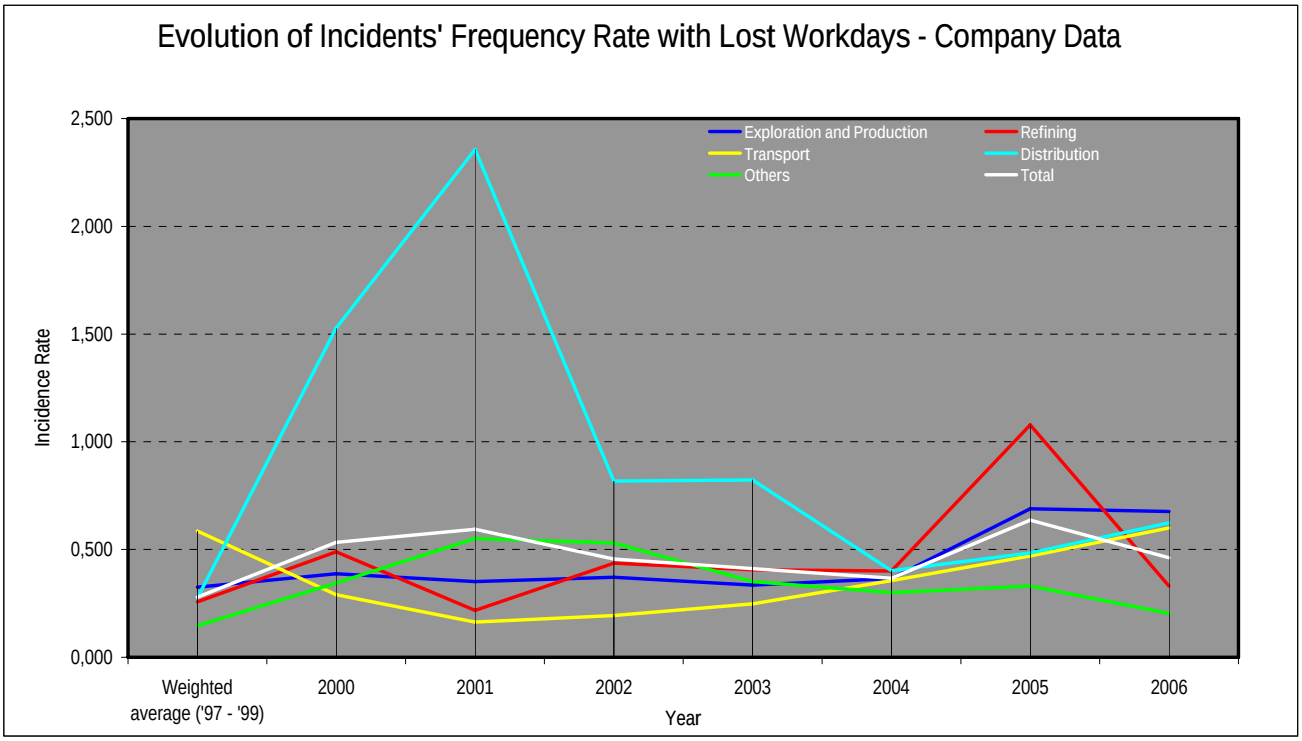

Figure 2.6.1

2.6.2 Contractors data

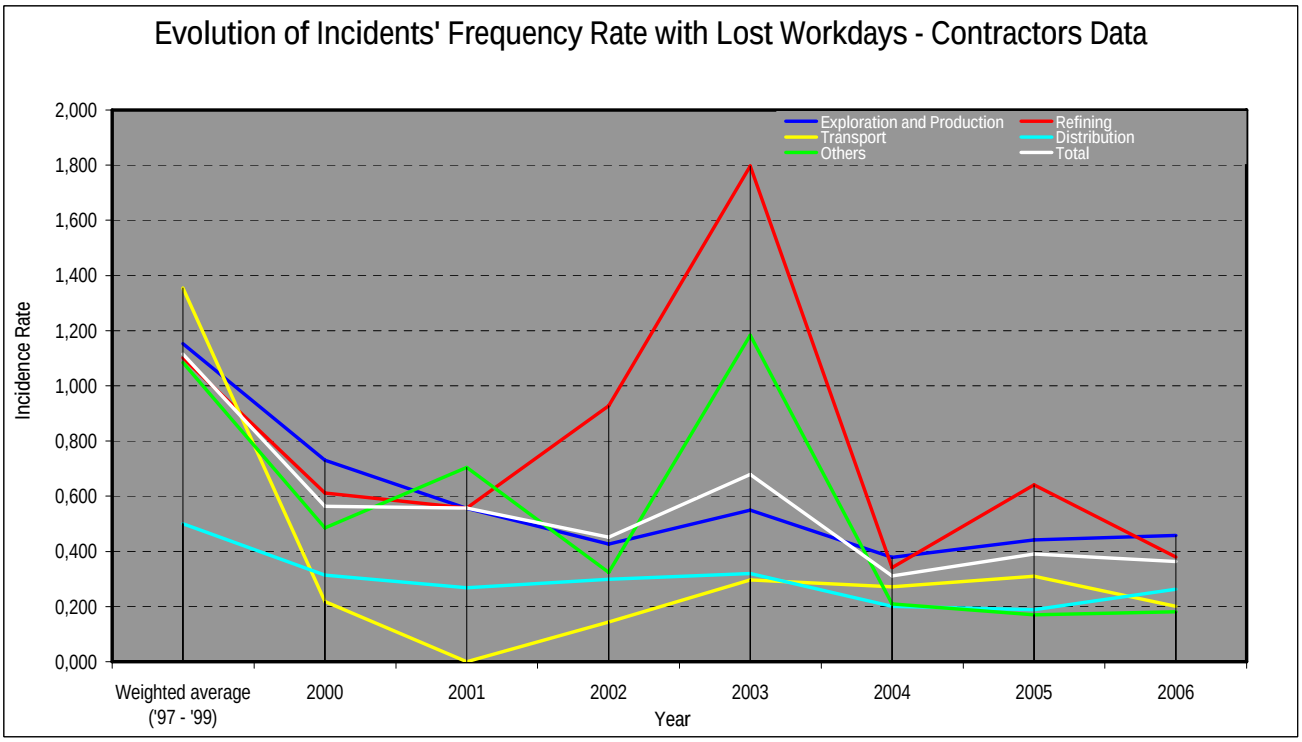

Figure 2.6.2

2.6.3 Combined data

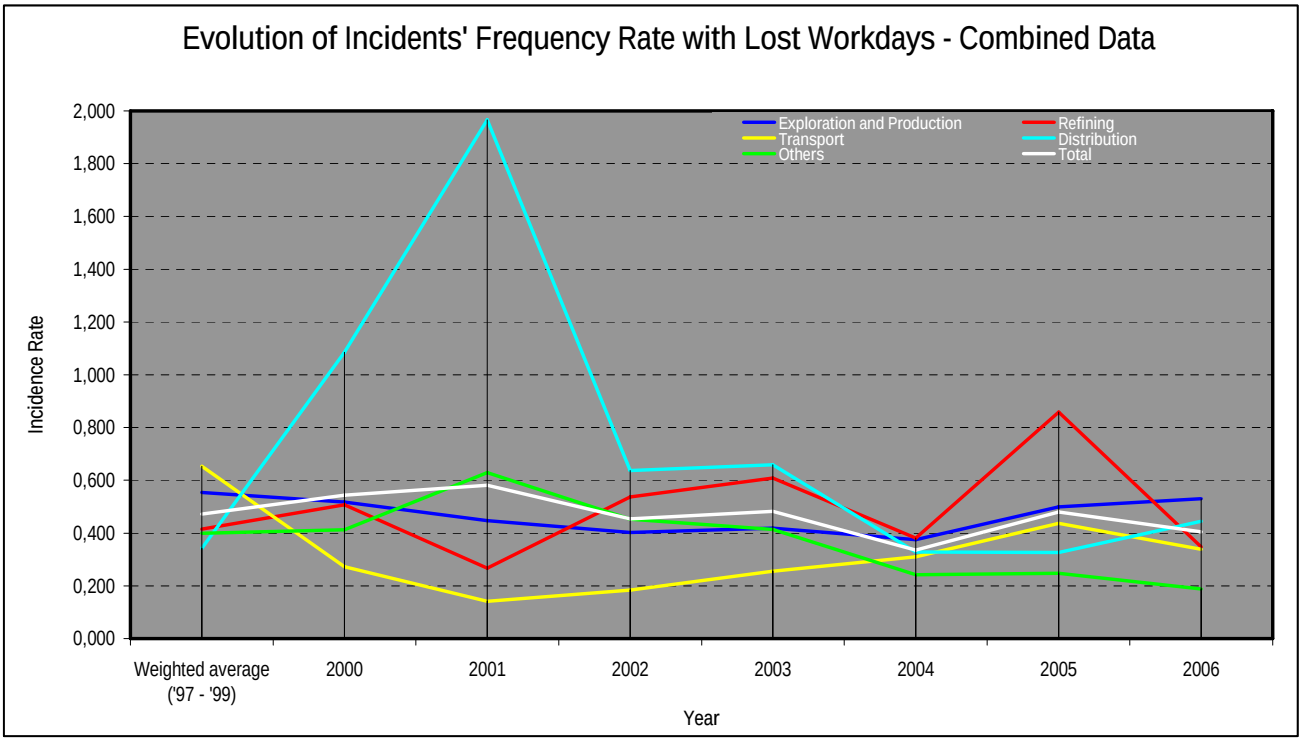

Figure 2.6.3

Figures 2.6.1 to 2.6.3 represent the results of the incidents' frequency rate with lost workdays, for the workers of the Companies, Contractors and Combined respectively, for the term 1997/2006. The tabulated corresponding results are shown in APPENDIX A.

The "Total" Combined (figure 2.6.3) represents data reported by the following number of companies according to the corresponding year:

	Number of companies that reported data:	
Year	For this rate	For the Global Statistic
1997	10	10
1998	14	15
1999	11	11
2000	9	10
2001	10	13
2002	14	15
2003	15	16
2004	16	17
2005	17	17
2006	14	16

2.7 Fatal incidents' rate (by functional unit); data for the year 2006

The fatal incidents' rate is defined by the following formula:

Fatal incidents' rate = $\frac{\text{Number of fatalities x 200}}{\text{Hours worked in thousands}}$

(Please refer to Chapters 6.0 and 10.0 in the User's Manual)

Function	Number of companies that reported data related to this rate	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this rate (company and contractors) – in thousands
Exploration and Production	10	766,369	765,709
Refining	10	383,624	382,671
Transport	7	77,999	77,941
Distribution	8	56,681	56,681
Others	9	329,221	328,964
Total	14	1,613,893	1,611,965

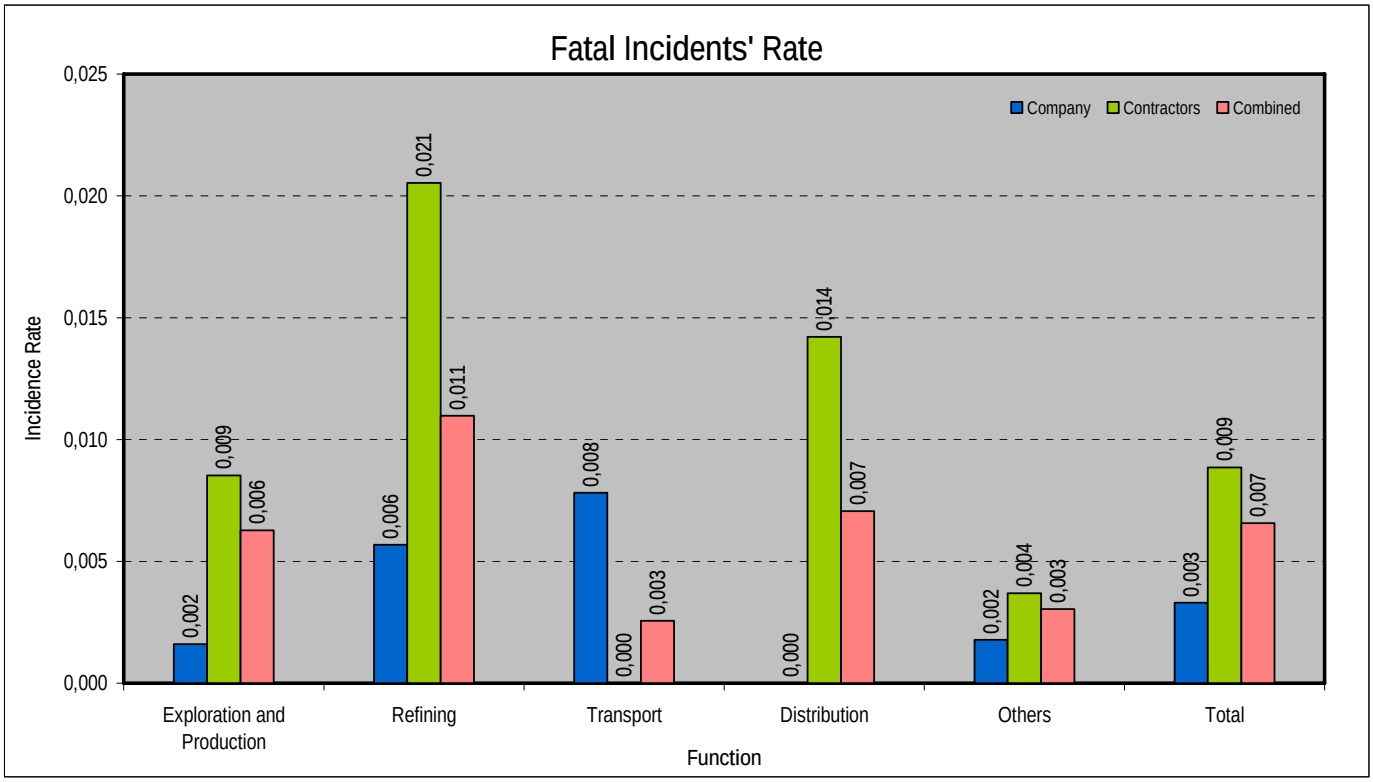

Figure 2.7

2.8 Evolution of the fatal incidents' rate (by functional unit)

2.8.1 Company data

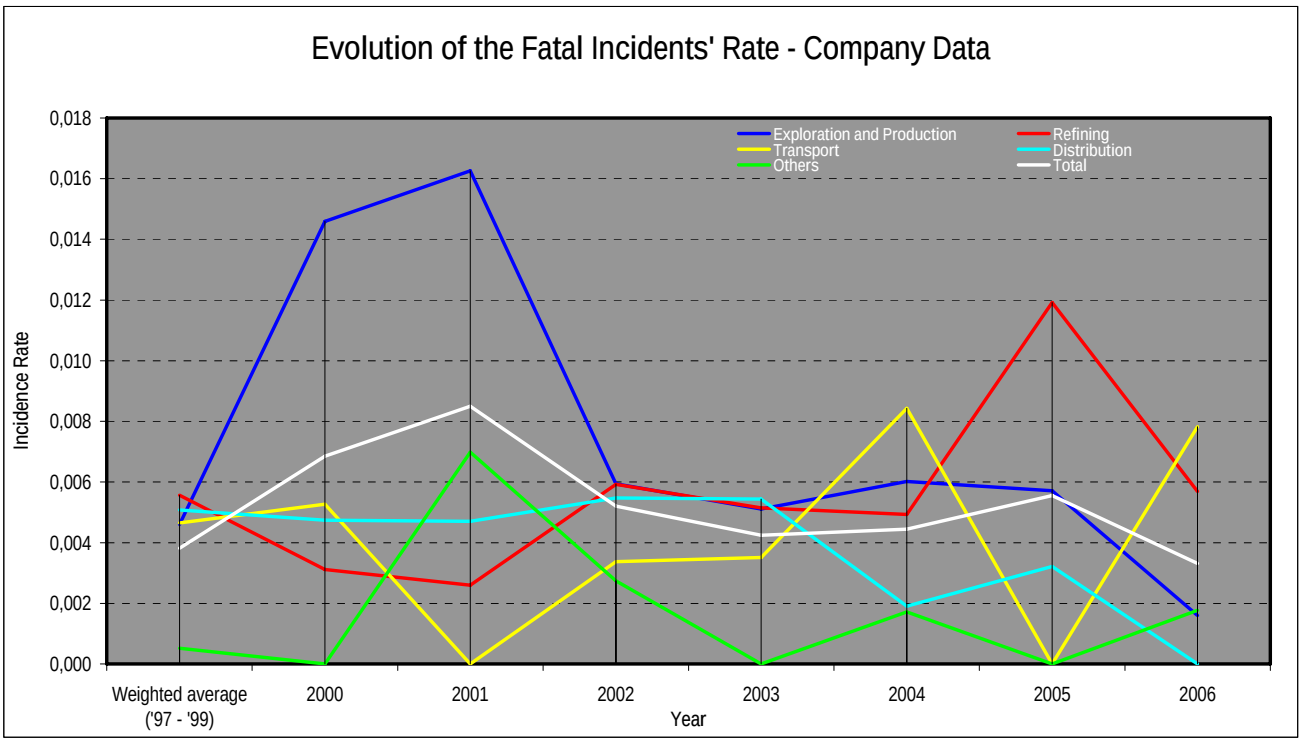

Figure 2.8.1

2.8.2 Contractors data

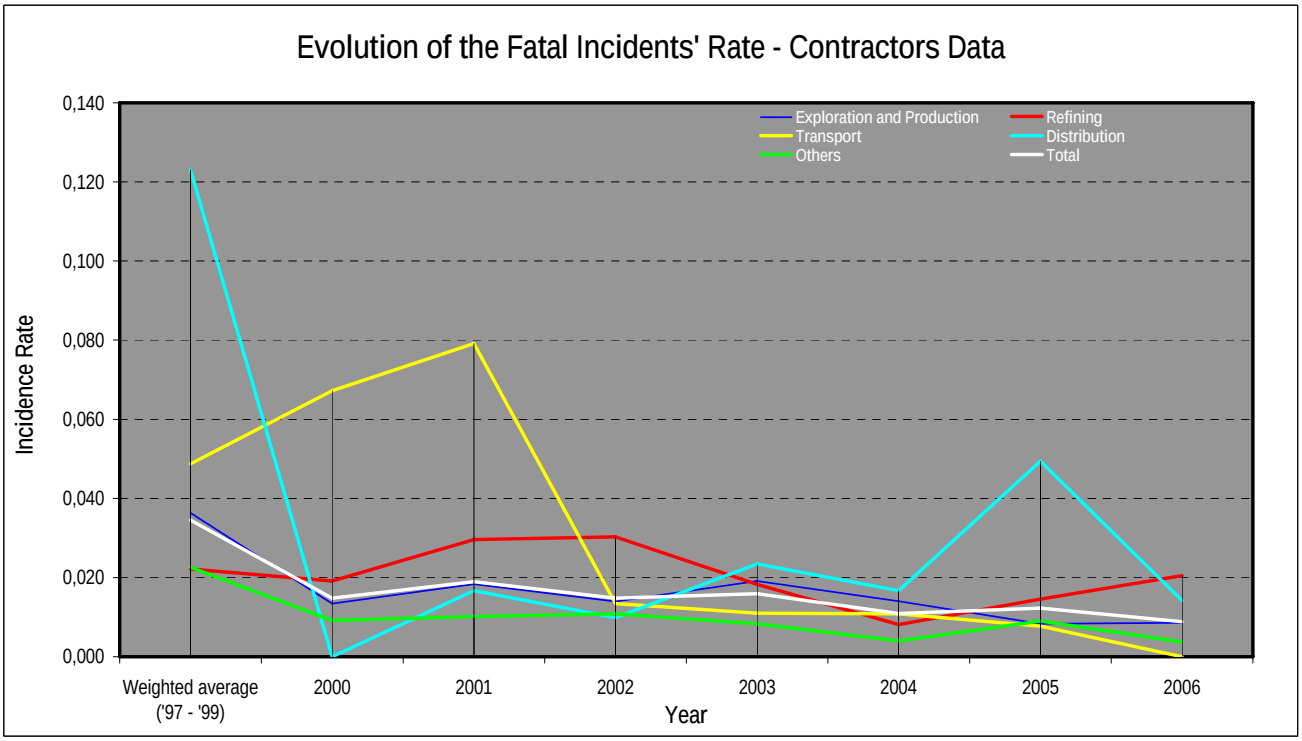

Figure 2.8.2

2.8.3 Combined data

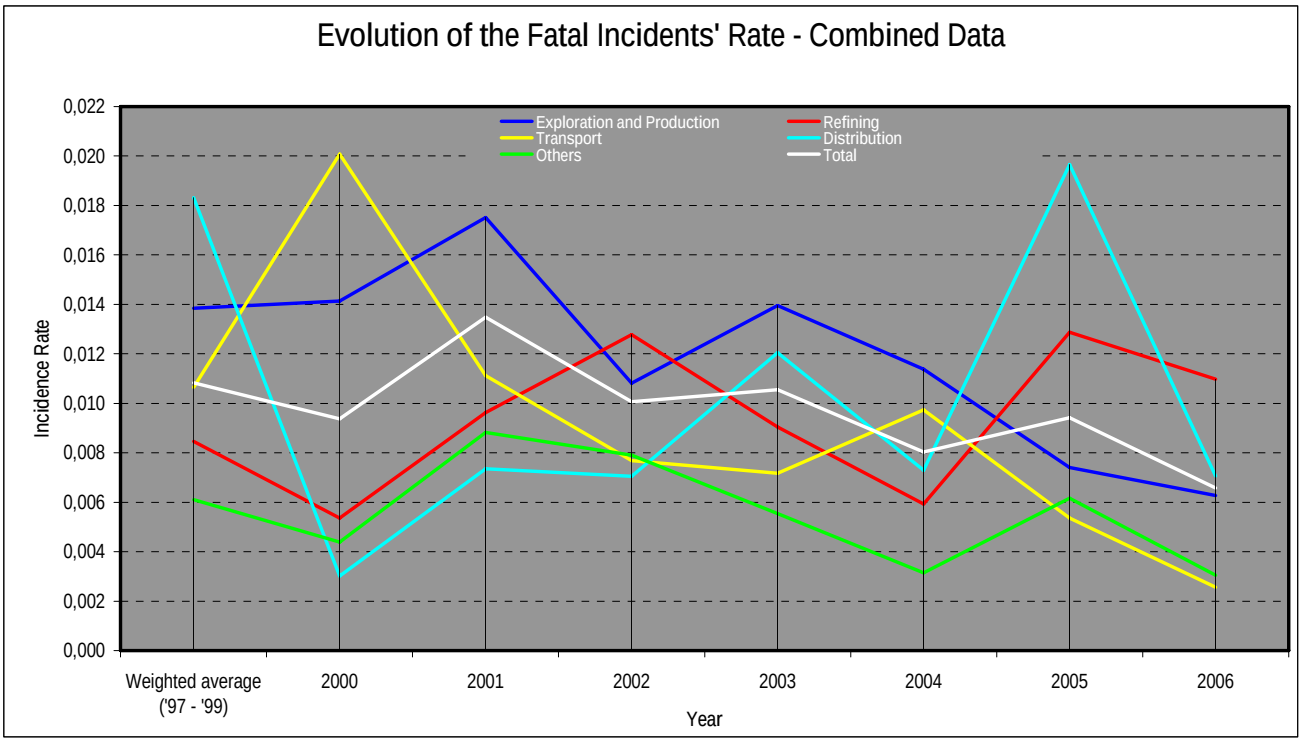

Figure 2.8.3

Figures 2.8.1 to 2.8.3 represent the fatal incidents' rate for workers of the Companies, Contractors and Combined respectively, for the term 1997/2006. The corresponding tabulated results are shown in APPENDIX A.

The "Total" combined (figure 2.8.3) represents data reported by the following number of companies according to the year considered:

	Number of companies that reported data:	
Year	For this rate	For the Global Statistic
1997	10	10
1998	13	15
1999	8	11
2000	8	10
2001	10	13
2002	15	15
2003	16	16
2004	17	17
2005	17	17
2006	14	16

The table below shows the OGP[4] fatal incidents' rate reported in its Safety Performance Indicators Report N°391 for the year 2006, and it is compared to the corresponding ARPEL data:

		Category		
"Exploration and Production"		Company	Contractors	Combined
Onshore and Offshore	ARPEL	0.002	0.009	0.006
	OGP	0.004	0.009	0.008

[4] OGP only comprises "Exploration and Production", so this is the only functional unit considered when comparing results with ARPEL Statistics. Moreover, this rate is originally reported by OGP as "number of fatalities by 1,000,000 hours worked". For this reason, and to make comparisons, results were converted to "number of fatalities by 200,000 hours worked" (ARPEL's units)

2.9 Comparative incidence rates (by company); data for the year 2006

This Chapter shows the results of individual companies for each of the indicators referred above, for the total functional units. Each letter represents a company that reported data.

In the cases where data provided corresponded not only to the workers of the company but also to contractors, the combined result represents the average of the company and contractors data. In the cases where data for the workers of the company was the only data provided, the combined result matches the company result.

2.9.1 Total incidents´ rate by company

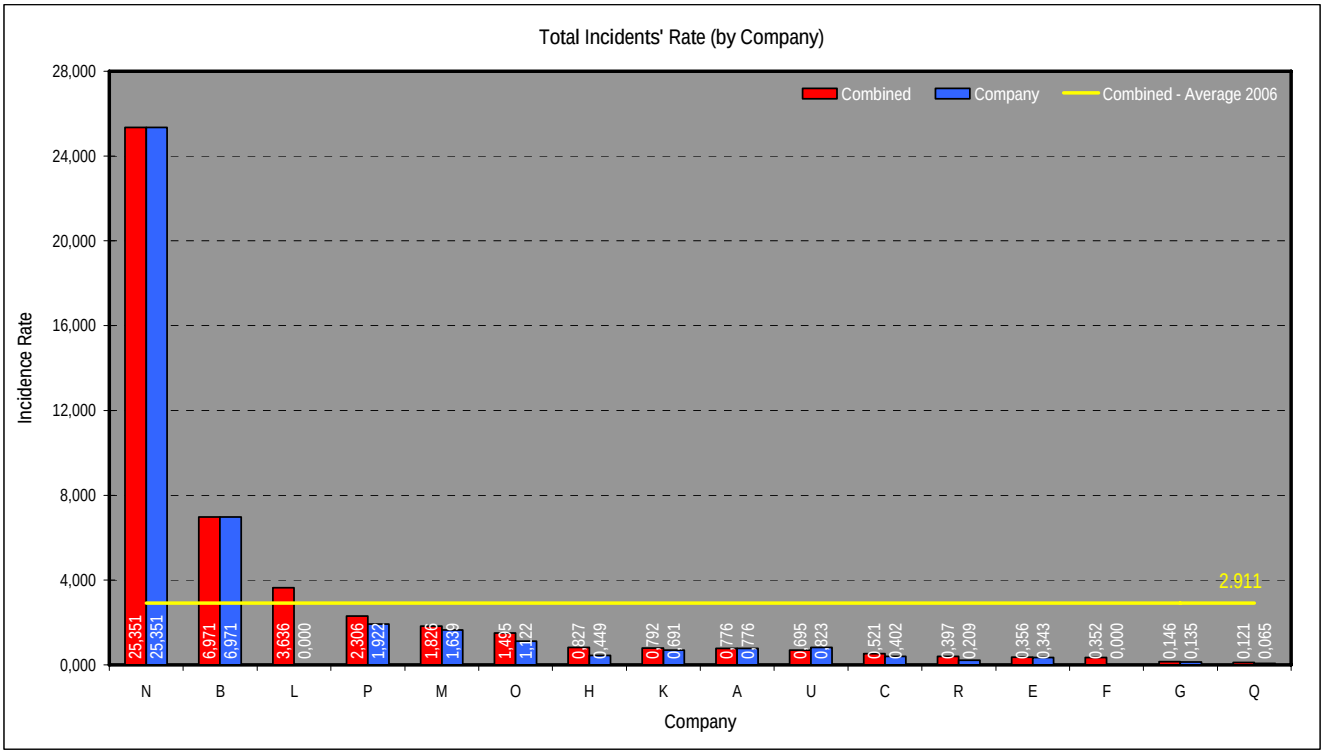

Figure 2.9.1

2.9.2 Incidents´ gravity rate by company

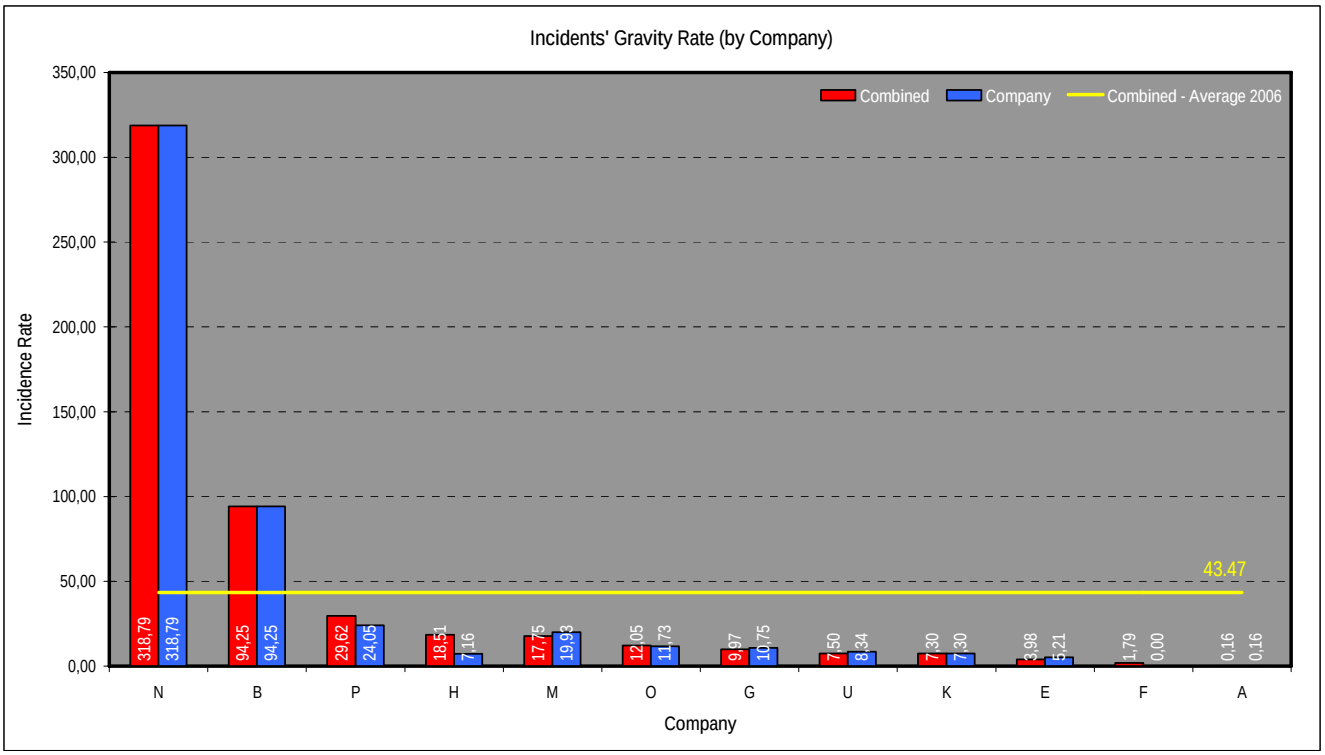

Figure 2.9.2

2.9.3 Incidents' frequency rate with lost workdays by company

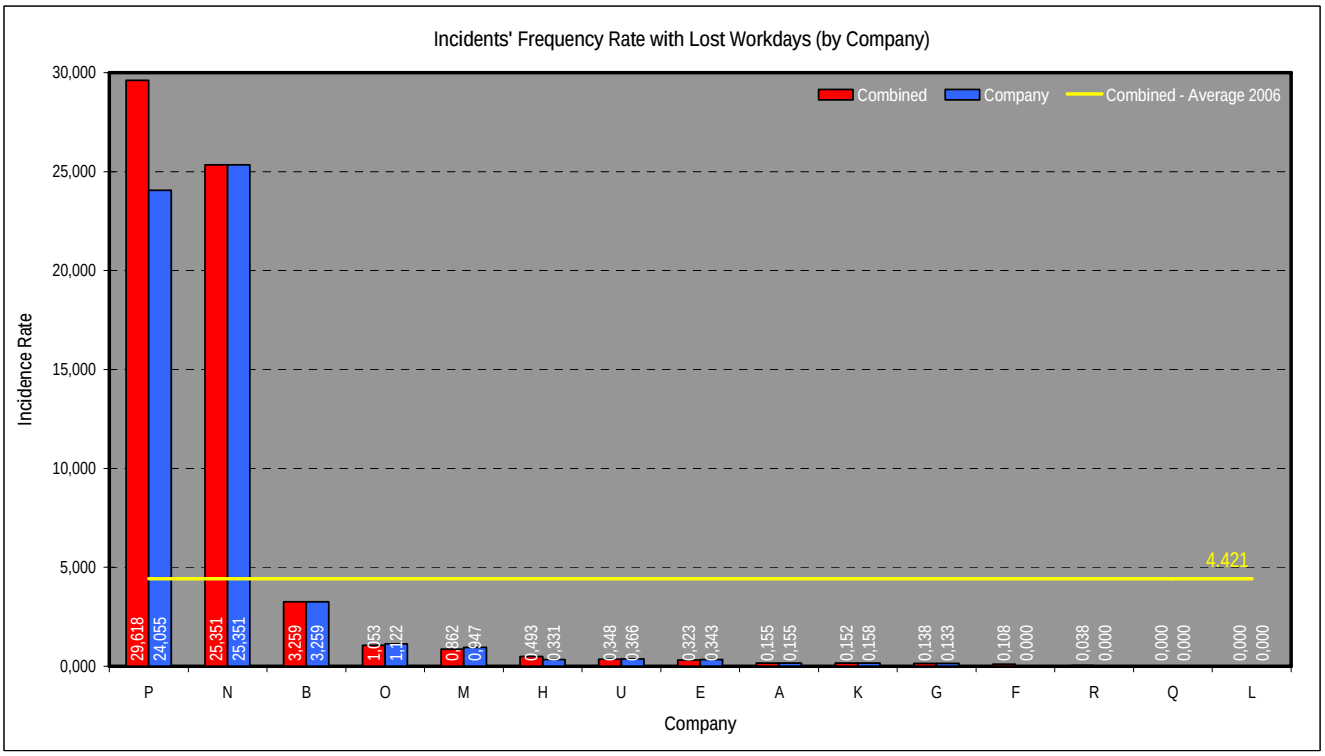

Figure 2.9.3

2.9.4 Fatal incidents' rate by company

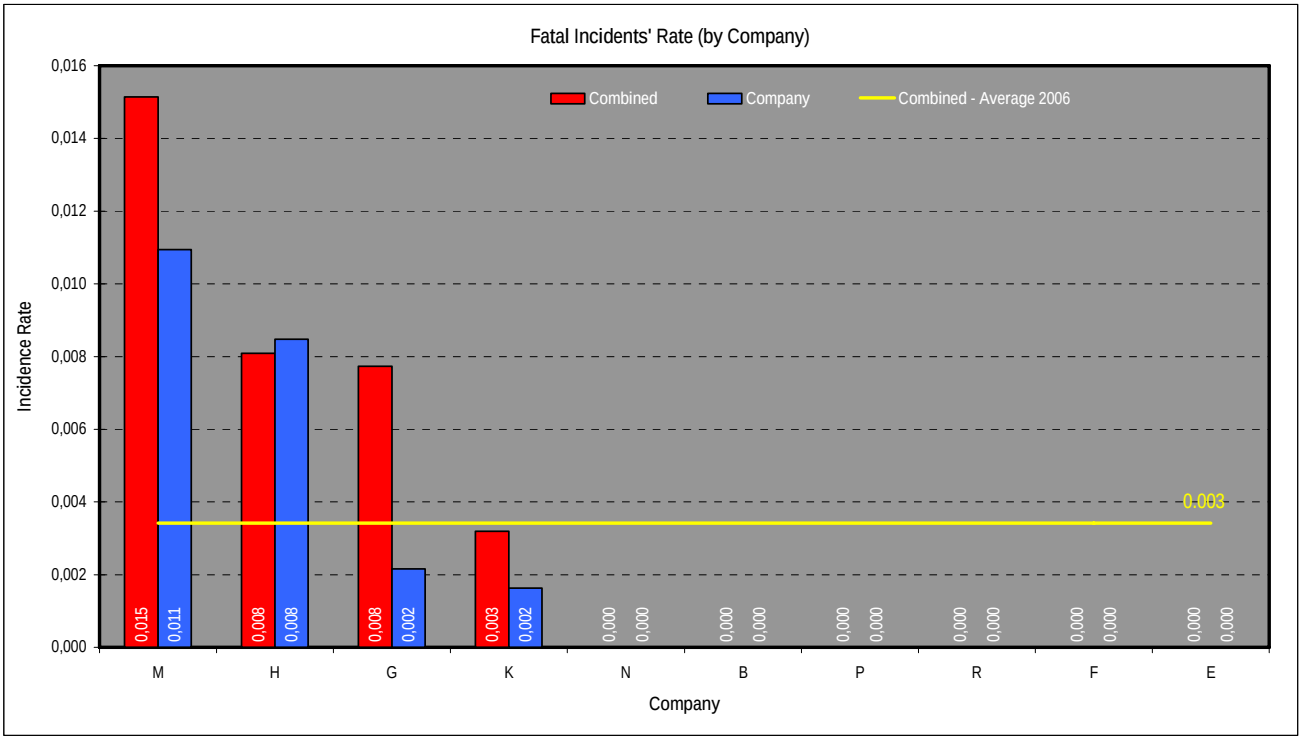

Figure 2.9.4

3.0 REACTIVE INDICATORS - offshore activities

The previous chapter presented the results of the four reactive indicators, for all the activities of those ARPEL Member Companies that reported data, including offshore activities. This chapter presents the results of the same four incidents´ rates specifically applied to offshore activities, in which Exploration and Production is the only applicable function.

A table below shows the number of ARPEL Member Companies that reported specific offshore data by year.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
N° of companies	0	2	1	0	0	4	4	4	5	5

Tabulated results corresponding to the figures in this Chapter are shown in APPENDIX A.

3.1 Total incidents´ rate – offshore activities

Year	Number of companies that reported data related to this rate	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this rate (company and contractors) – in thousands
1998	2	42,960	42,960
1999	1	33,376	33,376
2002	4	100,880	100,880
2003	4	101,741	101,725
2004	4	70,649	70,649
2005	5	101,311	101,311
2006	5	149,545	149,545

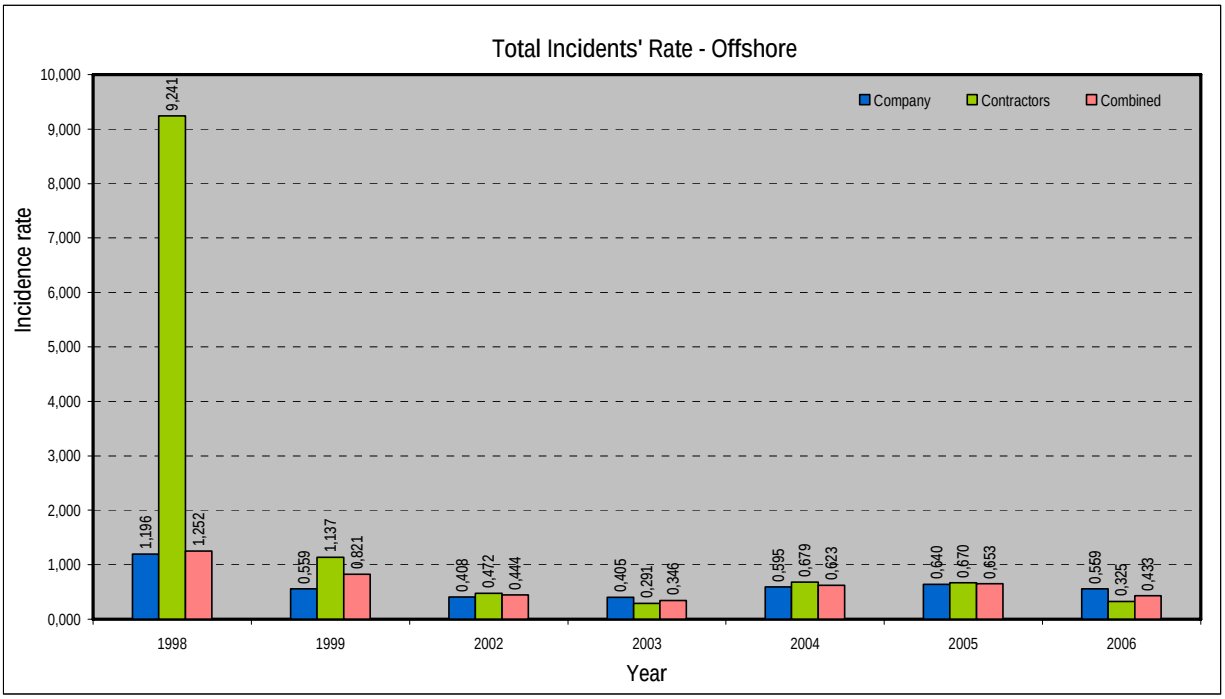

Figure 3.1

3.2 Incidents´ gravity rate – offshore activities

Year	Number of companies that reported data related to this rate	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this rate (company and contractors) – in thousands
1998	1	42,960	40,377
1999	1	33,376	33,376
2002	2	100,880	3,450
2003	4	101,741	50,785
2004	4	70,649	49,084
2005	5	101,311	76,883
2006	5	149,545	149,545

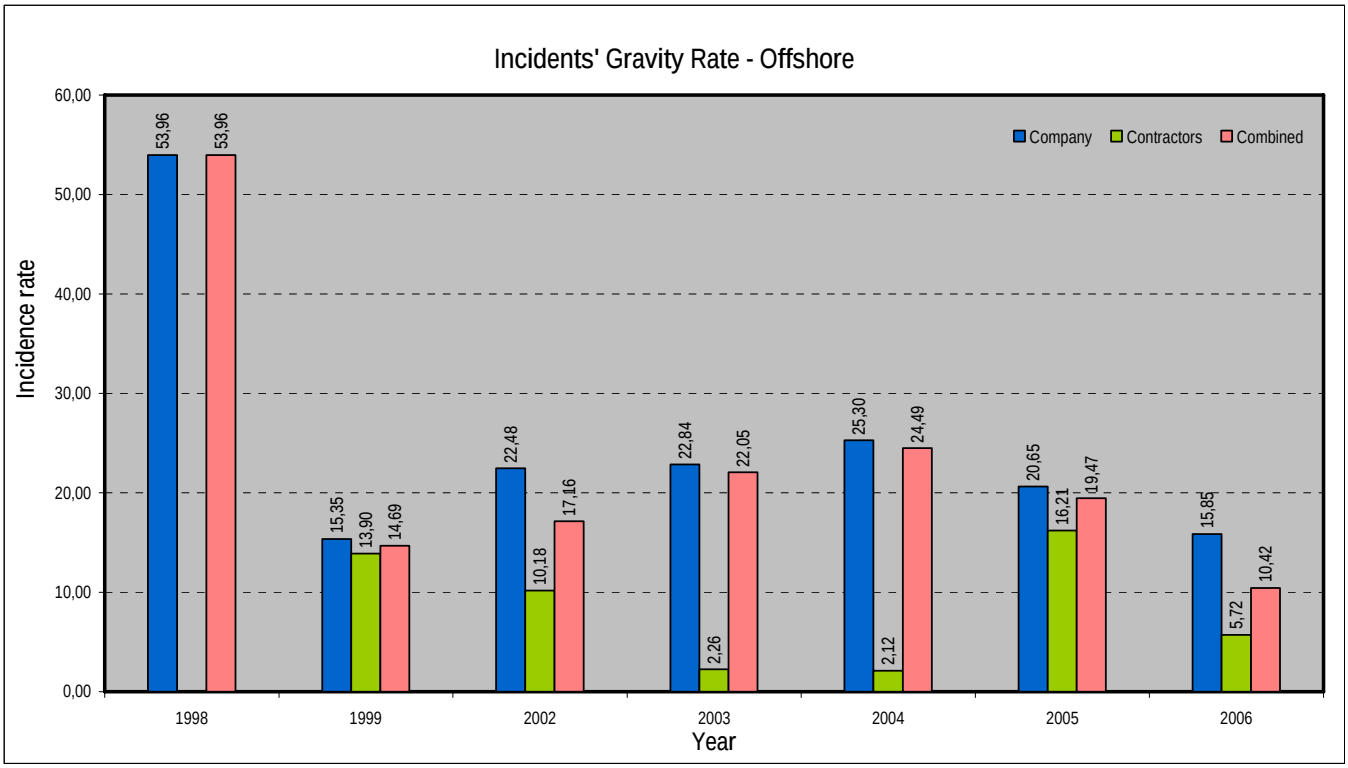

Figure 3.2

3.3 Incidents' frequency rate with lost workdays – Offshore activities

Year	Number of companies that reported data related to this rate	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this rate (company and contractors) – in thousands
1998	2	42,960	42,960
1999	1	33,376	33,376
2002	3	100,880	100,877
2003	4	101,741	50,785
2004	4	70,649	70,649
2005	4	101,311	32,549
2006	5	149,545	149,545

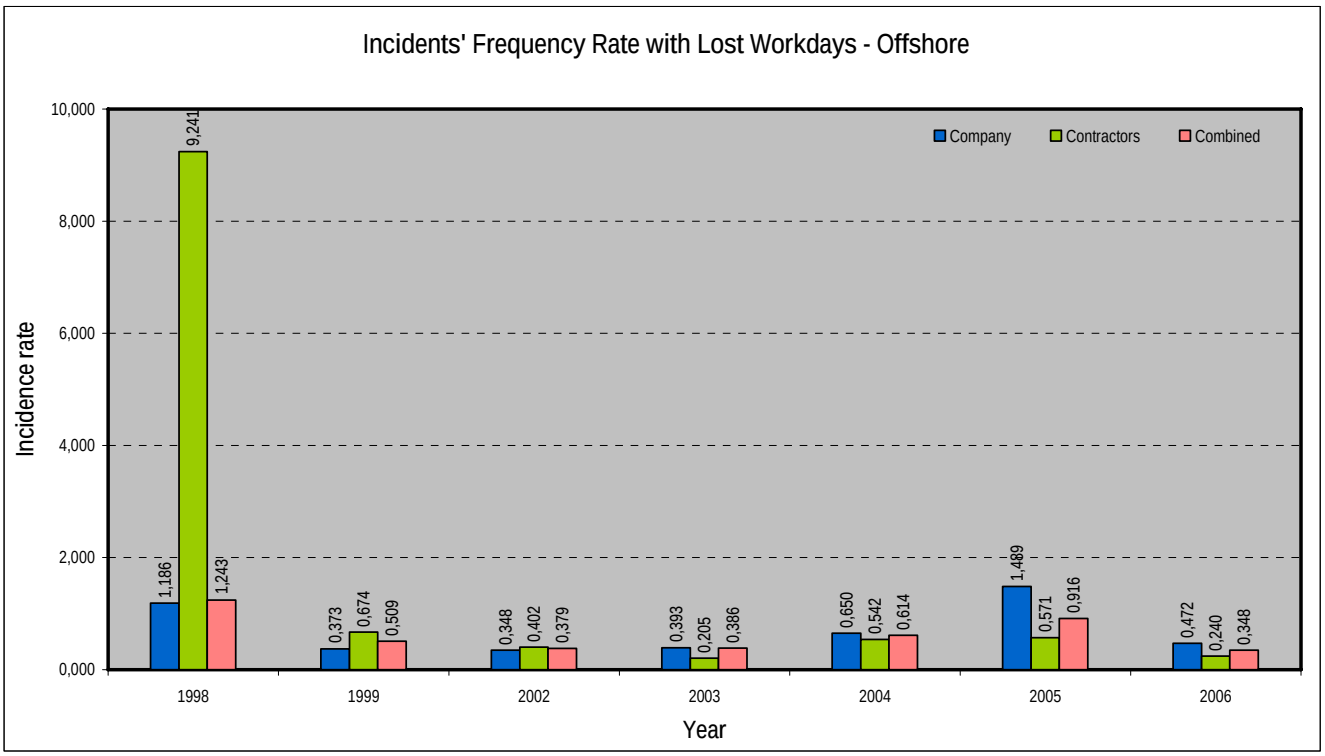

Figure 3.3

3.4 Fatal incidents´ rate – Offshore activities

Year	Number of companies that reported data related to this rate	Total reported hours worked (company and contractors) – in thousands	Hours worked utilized to calculate this rate (company and contractors) – in thousands
1998	2	42,960	42,960
1999	1	33,376	15,123
2002	3	100,880	100,877
2003	4	101,741	101,725
2004	4	70,649	70,649
2005	5	101,311	101,311
2006	5	149,545	149,545

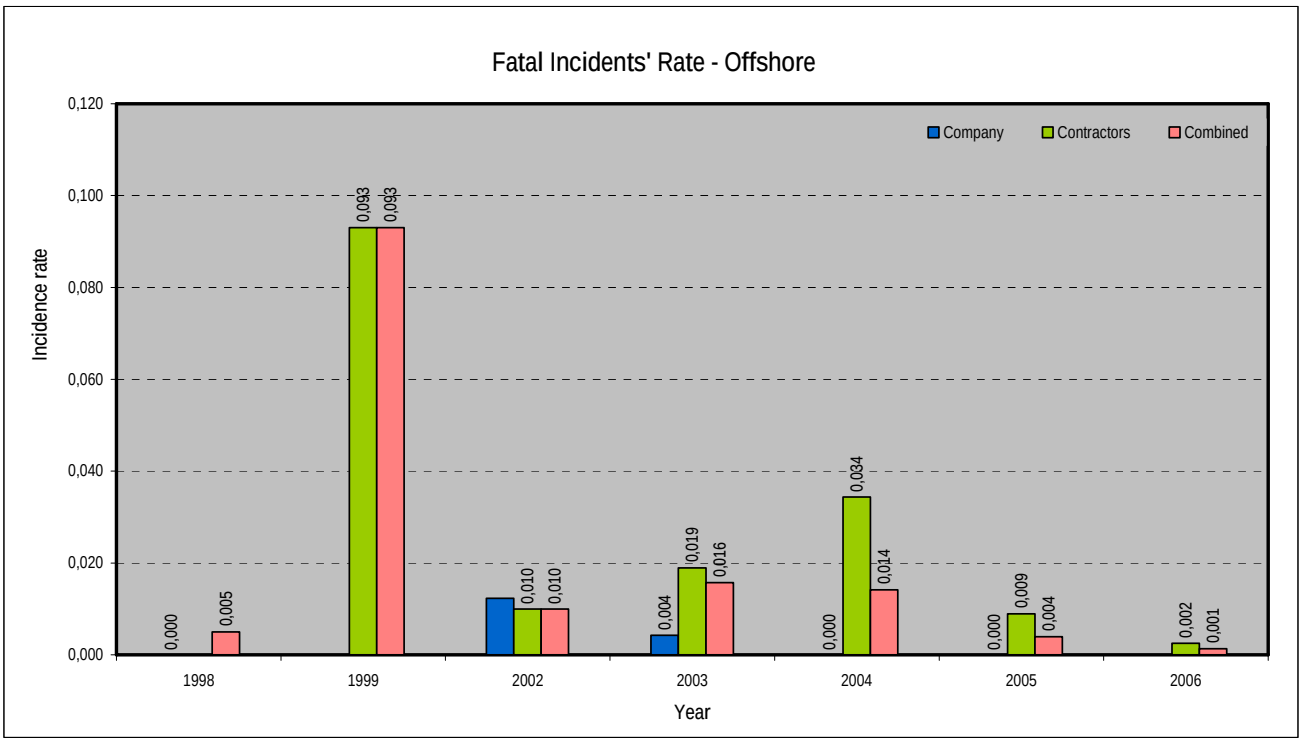

Figure 3.4

Comparing ARPEL data with OGP data (OGP Report N° 391 on Safety Performance Indicators), the OGP fatal incidents' rate offshore was of 0.003[5] fatalities by 200.000 hours worked in 2006 for the combination of workers of the company and contractors, and the same ARPEL indicator was of 0.001.

[5] *OGP originally reports this rate as "number of fatalities by 1,000,000 hours worked". For this reason, and to make comparisons, results were converted to "number of fatalities by 200,000 hours worked" (ARPEL's units)*

4.0 FATALITIES CAUSES

The different fatalities causes in the oil industry are reported in this chapter, for the participating ARPEL Member Companies, for the year 2006. At the same time, and for comparative reasons, the corresponding results for the years 2001 to 2005 are presented too.

All fatal incidents reported with their corresponding explanation of cause were considered for the graphics shown below, no matter whether they are related to the workers of the companies or contractors, both for offshore and onshore activities. The different causes are presented as a function of the number (percentage) of fatalities that they caused.

4.1 Fatalities causes –Year 2006

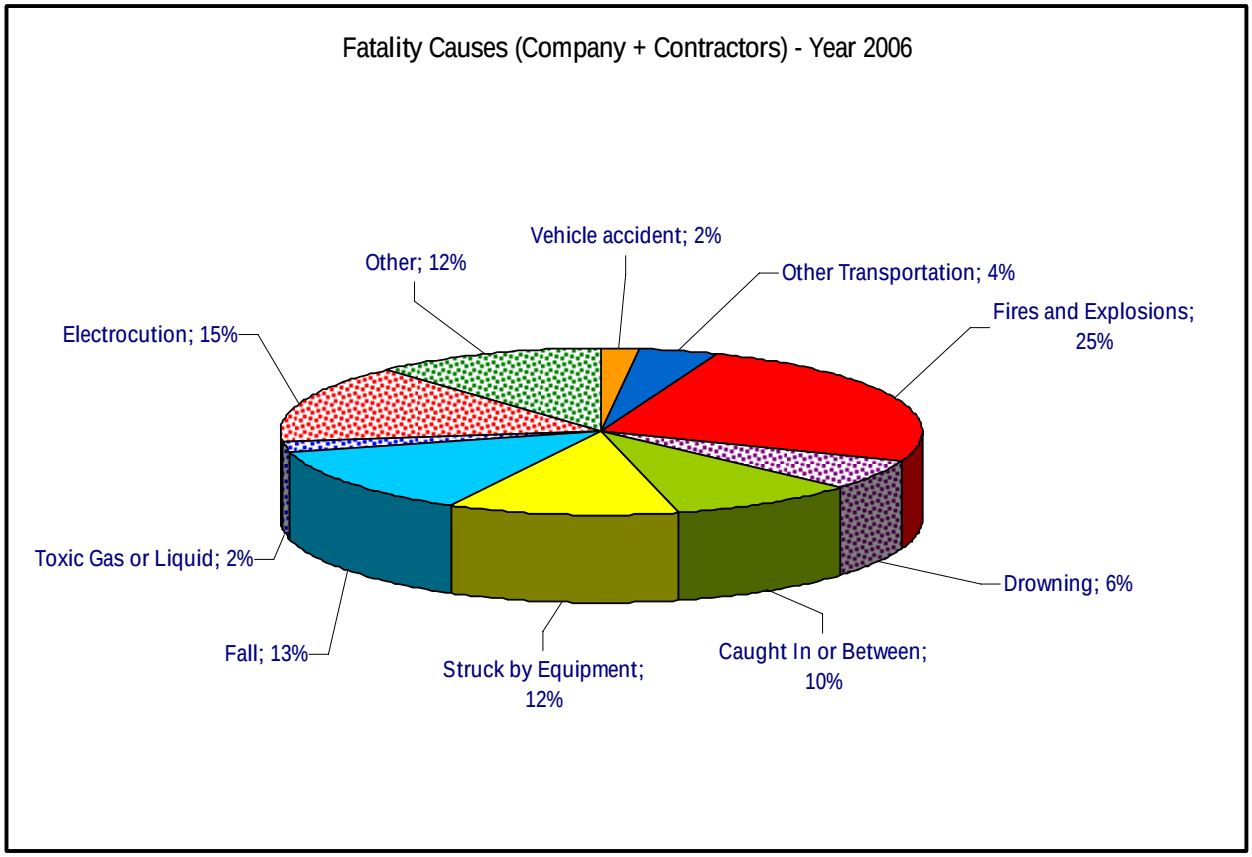

Figure 4.1

4.2 Fatality causes - comparative results

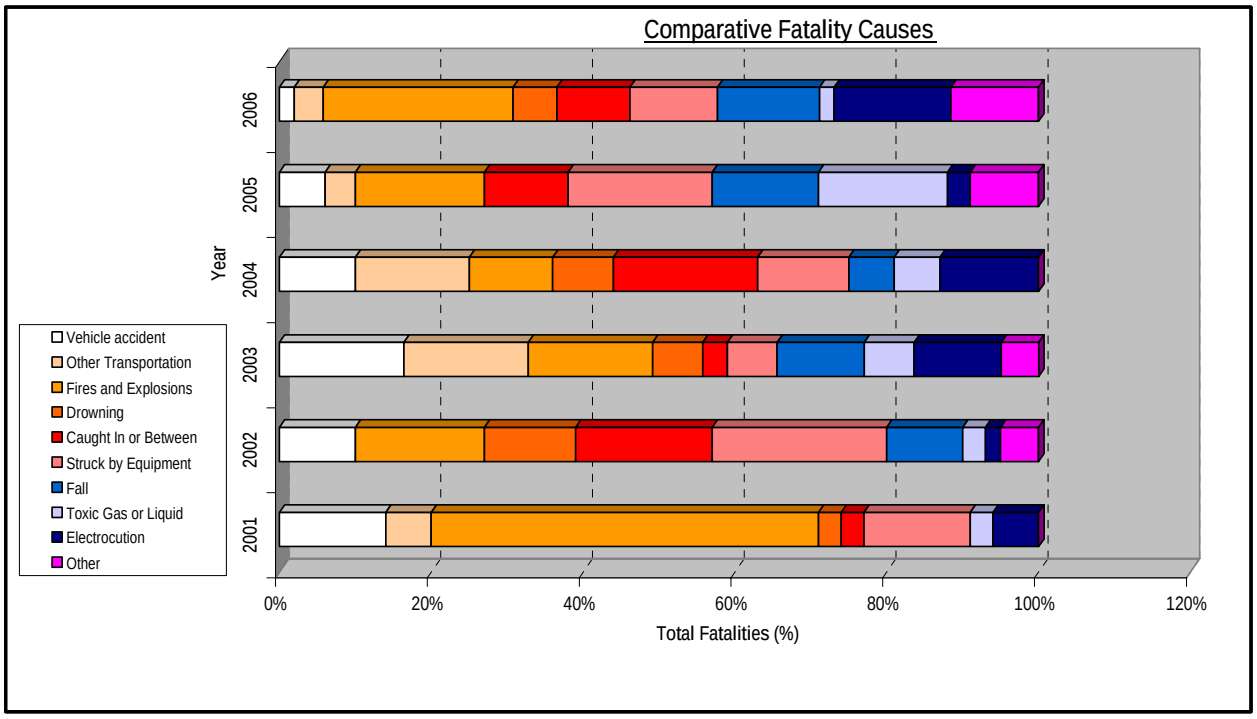

Figure 4.2

Figure 4.1 represents the different fatalities causes reported for the year 2006 as a function of the number (percentage) of fatalities they caused.

Figure 4.2 is a graphic comparison of the relative incidence (percent of each year's total fatalities) of the different fatality causes for the term 2001-2006. The table below shows the total number of fatalities reported with cause by year.

Year	Total number of fatalities reported with cause
2001	35
2002	58
2003	61
2004	52
2005	70
2006	52

According to figure 4.2, the three causes which – on average - caused the greatest percentage of fatal incidents in the last six years were: "Fires and Explosions" in the first place, "Struck by Equipment" in the second place, and "Caught in or between" in the third place. The average values in the period 2001-2006, weighted according to the total number of fatalities by year, are: 21%, 15%, and 11% respectively. The corresponding tabulated results are included in APPENDIX A.

The table below shows the fatality causes reported by OGP[6] in its Report Nº 391 on Safety Performance Indicators for the year 2006, compared to the corresponding ARPEL data.

	Function "Exploration and Production" –Combined Data – onshore and offshore			
	Total fatalities	Fatality # 1	Fatality # 2	Fatality # 3
ARPEL 2006	24	Electrocution (25.0%)	Struck by equipment (20.8%)	Drowning and Fall (12.5% each)
OGP 2006	115	Struck by (22.6%)	Vehicle accident (21.7%)	Fall (14.8%)

[6] OGP only comprises "Exploration and Production", so this is the only functional unit considered when comparing results with ARPEL Statistics.

5.0 SAFETY PROACTIVE INDICATORS[7]

5.1 Task planned observations rate

The task planned observations rate (TPO) is defined by the following formula:

TPO rate = number of task planned observations recorded in the reported period
Average number of employees in the reported period

(Please see Chapters 6.0 and 10.0 in the User's Manual)

Year 2006			
Function	Number of companies that reported data related to this rate	Total reported hours worked (company[8]) – in thousands	Hours worked utilized to calculate this rate (company[1]) – in thousands
E&P	7	127,735	94,933
Refining	7	112,399	94,110
Transport	4	13,499	11,993
Distribution	3	17,948	13,118
Others	5	52,209	47,731
Total	9	323,789	261,885

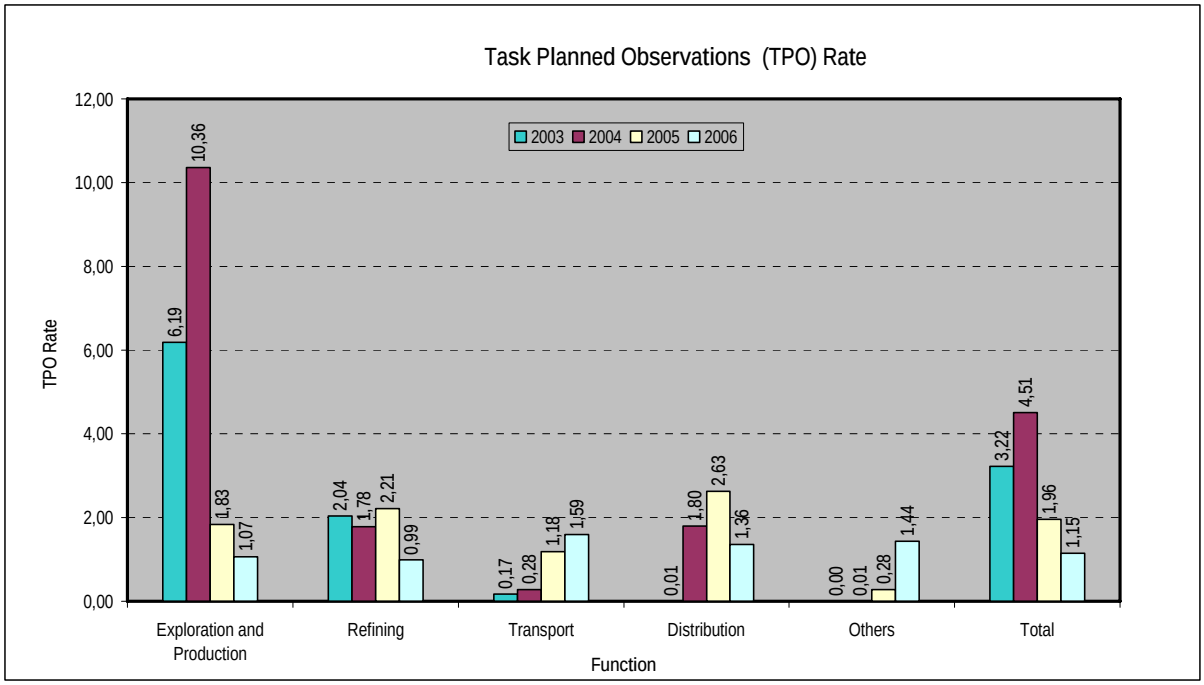

Figure 5.1

[7] *For the year 2006, one of the companies reported "Transport" and "Distribution" included under "Exploration and Production" and "Refining". For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).*

[8] *One company reported data consolidated for workers from the company and contractors. For this company, the total reported hours worked and those utilized to calculate this rate, are the sum of those of the company and those of contractors.*

5.2 Safety training intensity rate

The safety training intensity rate (STI) is defined by the following formula:

$$\text{STI rate} = \frac{\text{Total hours of safety training provided in the reporting period} \times 100}{\text{Total recordable number of hours worked in the same period of time}}$$

(Please see Chapters 6.0 and 10.0 in the User's Manual)

Year 2006			
Function	Number of companies that reported data related to this rate	Total reported hours worked (company[9]) – in thousands	Hours worked utilized to calculate this rate (company[2]) – in thousands
E&P	8	303,198	207,641
Refining	7	257,015	203,042
Transport	3	28,855	6,662
Distribution	3	35,228	20,274
Others	5	116,104	67,295
Total	10	740,400	504,973

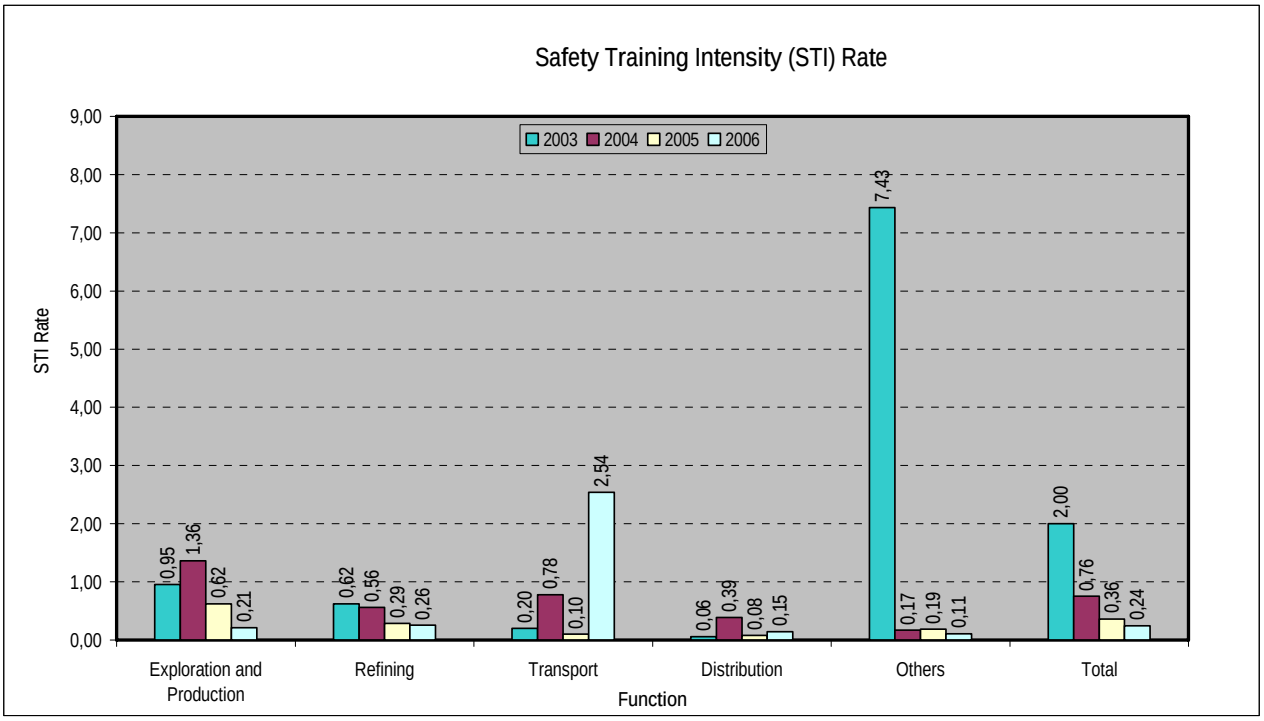

Figure 5.2

Figures 5.1 and 5.2 represent task planned observations and safety training intensity rates respectively for the term 2003 - 2006. The corresponding tabulated results are shown in APPENDIX A.

[9] *One company reported data consolidated for workers from the company and contractors. For this company, the total reported hours worked and those utilized to calculate this rate, are the sum of those of the company and those of contractors.*

6.0 GLOSSARY OF TERMS ACCORDING TO ARPEL CRITERIA

a) Case involving days away from work

All nonfatal cases that result in the worker being away from work for at least one scheduled workday after the day of the injury or illness. The day on which the worker goes home before the finalization of his workday is not considered in this item. Fatalities, as well as the days of restricted labor activity are excluded, because they are recorded separately.

b) Case involving medical treatment

All treatment cases of injuries / illnesses managed by doctors, registered professionals or non-medical personnel. The medical treatment does no include first aids (one single treatment and the following observation of scratches, cuts, burns, splinters and other episodes without gravity that generally do not require medical attention) even if a doctor or a registered professional provides them.

c) Case involving restricted workdays

All non-fatal cases that imply days of restricted activity of his/her usual activities after the day of the injury or illness. Fatalities must be excluded.

d) Company worker

Any individual employed by the reporting company or included in its salary registration.

e) Contractor

Any individual directly involved in the execution of an assigned work for the reporting company, according to a contract.

f) Fatal incidents' rate

The total of fatalities by 200.000 hours worked (See formula 4 in APPENDIX C).

g) Hours worked

The hours worked by both the workers of the company and the contractors (recorded separately).

h) Incidents' frequency rate with lost workdays

The number of lost workdays cases by 200.000 hours worked. Cases of restricted workdays and Cases of Medical Treatment are not included. (See Formula 3 in APPENDIX C).

i) Incidents' gravity rate

The number of lost workdays per 200.000 hours worked. (See Formula 2 in APPENDIX C). Note that ARPEL definition of lost workdays includes all calendar days (including weekends and holidays). See also "number of days away from work" on item j.

j) Number of days away from work

The total number of days (consecutive or not) after the day of the injury or illness on which the workers involved (according to the definition of c*ase involving days away from work*) should have worked but didn't as a result of the occupational injury or illness, until the day they get back to work. The day the person starts working is excluded. Weekends and holidays are included, even if the employee was not scheduled to work.

k) Recordable case - fatality

A fatality resulting from an occupational injury or illness. The fatality should be loaded to the year in which the injury event occurred or the occupational illness was recorded.

l) Recordable case - illness

Any occupational incident resulting from an illness (according to the provided classification by the legislation/regulation [if applicable] of the country where the company reports its activities). Occupational illnesses resulting in fatalities are included.

m) Recordable case - injury

Any occupational incident resulting in an injury (according to the provided classification by the legislation/regulation [if applicable] of the country where the company reports its activities). Occupational injuries resulting in fatalities are included.

n) Recordable cases - total

The sum of recordable cases – injuries, recordable cases – illnesses, and recordable cases – fatalities.

o) Safety training intensity (STI)

The proportion of the total hours worked which were assigned to safety training activities in the reporting period.

p) Safety training intensity rate

The percentage cumulative safety training hours over the total number of hours worked in the reporting period. (See Formula 6 in APPENDIX C).

q) Task planned observations (TPO)

"Task planned observations" (TPO) are safety observations performed according to a systematic method. They constitute a recorded visual analysis in which the sequence of tasks, maneuvers and operations required to attain a pre-established result within the

company is studied by well-trained and qualified personnel. This study includes hazard identification and risk management during normal task performance, and comprises observations of immediate and basic aspects as well as systemic ones. Observations are recorded in a pre-established form according to a given procedure to determine all deviations that result in an increased probability of any material or human resources loss.

r) Task planned observations rate

The quotient between the number of task planned observations performed during the reporting year and the average number of workers in the same period. (See formula 5 in APPENDIX C).

s) Total incidents' rate

The total rate (Recordable cases) of occupational injuries, illnesses or fatalities by 200,000 hours worked. (See formula 1 in APPENDIX C).

t) Work relatedness

An injury or illness must be considered to be work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, defining the work environment as the establishment and other locations where one or more employees are working or are present as a condition of their employment. The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of his or her work.

7.0 REFERENCES AND BIBLIOGRAPHY

The following documents were utilized to develop this report:

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2. "European Downstream Oil Industry Safety Performance - statistical summary of reported incidents - 1996". CONCAWE Safety Management. RA 1250, Report No. 4/97. Brussels. December 1997. 16 pages

3. "Summary of U.S. Occupational Injuries, Illnesses, and Fatalities in the Petroleum Industry - 1996". American Petroleum Industry. API's Publication 2375. Washington, DF, September 1997. 46 pages

4. "E&P Industry Safety Performance Accident Data - 1997". The Oil Industry International Exploration & Production Forum. Report No. 6.72/281. London, October 1998. 78 pages

5. "Safety Performance of the Global E&P Industry – 1998". The Oil Industry International Exploration & Production Forum. Report No. 6.80/295. London, July 1999. 85 pages.

6. ARPEL User's Manual – Statistics on Incidents in the Oil and Gas Industry in Latin America and the Caribbean – 4th Edition, 2004. ARPEL. Montevideo. 30 pages

7. Occupational Safety and Health Administration – Regulations (Standards – 29CFR) - Determination of work relatedness -1904.5" - http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9636.

8. "OGP Safety Performance Indicators – 2006 data". Report No. 391. June, 2007. 118 pages.

8.0 APPENDIX A

8.1 Tabulated results: totals for the companies, contractors, and combined

Please refer below for the tables with the data utilized to generate the corresponding graphic for each incidents´ rate discussed in chapter 2.0, for the term 1997/2006.

Table 8.1.1: Total incidents' rate by functional unit (ARPEL, 1997-2006)

Function	Data Category	ARPEL 1997	ARPEL 1998	ARPEL 1999	*ARPEL Weighted average (1997-1999)*	ARPEL 2000	ARPEL 2001	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006
E&P	Company	3,966	1,554	0,291	*0,784*	0,233	0,575	0,453	0,348	0,440	0,556	0,573
	Contractors	5,705	4,878	2,173	*3,745*	0,798	1,076	0,564	0,519	0,614	0,812	0,789
	Combined	5,058	2,701	0,695	*1,579*	0,446	0,954	0,520	0,456	0,556	0,725	0,718
Refining	Company	3,962	1,001	0,459	*0,790*	2,109	0,867	0,533	0,400	0,563	0,744	0,532
	Contractors	5,514	4,408	3,039	*3,973*	0,974	1,671	0,566	0,540	0,705	1,793	0,948
	Combined	4,645	1,559	0,758	*1,313*	1,950	1,274	0,543	0,442	0,607	1,117	0,680
Transport	Company	3,480	2,184	0,432	*0,989*	0,264	0,106	0,357	0,295	0,438	1,008	1,149
	Contractors	4,211	2,296	1,479	*2,291*	0,219	1,243	0,326	0,245	0,351	1,608	1,486
	Combined	3,777	2,207	0,517	*1,223*	0,253	0,195	0,344	0,271	0,391	1,434	1,375
Distribution	Company	3,797	1,099	0,136	*0,565*	2,003	3,171	0,928	0,873	0,523	0,405	0,932
	Contractors	n/a	1,781	0,438	*0,972*	0,497	0,373	0,441	0,398	0,288	0,453	0,632
	Combined	3,797	1,200	0,175	*0,758*	1,454	2,259	0,755	0,693	0,438	0,422	0,783
Others	Company	1,303	0,926	0,094	*0,344*	0,206	1,376	0,688	0,402	0,357	0,376	0,447
	Contractors	6,459	4,271	2,063	*3,652*	0,009	0,555	0,375	0,315	0,210	0,685	0,792
	Combined	4,210	2,509	0,348	*1,221*	0,112	0,864	0,488	0,344	0,264	0,587	0,674
Total	Company	3,439	1,288	0,265	*0,677*	1,064	1,064	0,557	0,433	0,470	0,562	0,574
	Contractors	5,751	4,335	2,200	*3,595*	0,542	1,092	0,497	0,439	0,476	0,908	0,846
	Combined	4,589	2,246	0,578	*1,349*	0,899	1,083	0,526	0,437	0,474	0,762	0,734

Note: For the year 2006, one of the companies reported "Transport" and "Distribution" included under "Exploration and Production" and "Refining". For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

Table 8.1.2: Incidents' gravity rate by functional unit (ARPEL, 1997-2006)

Function	Data Category	ARPEL 1997	ARPEL 1998	ARPEL 1999	*ARPEL Weighted average (1997-1999)*	ARPEL 2000	ARPEL 2001	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006
E&P	Company	43,98	106,65	13,44	*34,94*	41,69	29,28	14,73	17,53	42,55	36,18	14,57
	Contractors	96,35	35,16	47,90	*53,67*	12,21	58,80	69,87	41,28	14,60	56,02	13,85
	Combined	76,86	82,00	20,84	*40,52*	30,57	36,48	51,31	27,19	29,46	45,31	14,15
Refining	Company	29,16	47,55	24,13	*29,37*	17,46	16,30	19,94	23,63	52,44	52,60	12,82
	Contractors	63,32	190,14	65,84	*104,71*	6,33	125,29	92,68	67,85	105,02	126,19	23,77
	Combined	44,19	81,86	28,96	*42,83*	15,90	31,21	50,46	30,79	60,29	65,08	14,41
Transport	Company	139,86	70,19	13,42	*33,18*	18,53	8,81	13,29	10,89	37,07	42,82	9,38
	Contractors	175,03	328,86	240,20	*255,11*	1,63	0,00	2,04	5,23	5,90	6,79	5,54
	Combined	154,15	122,76	31,81	*64,76*	14,49	8,36	7,89	9,61	32,68	35,45	8,49
Distribution	Company	43,74	69,64	14,99	*28,27*	15,74	19,07	18,41	14,96	14,90	19,69	11,36
	Contractors	n/a	13,32	1,26	*6,05*	6,71	5,65	5,28	6,29	3,91	6,16	6,92
	Combined	43,74	61,29	13,24	*27,42*	12,45	17,17	14,02	12,35	12,42	17,59	9,49
Others	Company	12,16	16,53	1,45	*5,28*	6,15	11,95	16,01	12,47	14,02	11,69	5,63
	Contractors	143,52	176,43	132,04	*148,43*	0,00	8,06	149,93	41,28	2,76	16,68	16,90
	Combined	86,21	92,19	18,28	*42,07*	3,21	16,80	81,27	16,04	13,41	11,94	6,20
Total	Company	41,70	66,13	11,69	*25,00*	23,84	20,28	17,12	17,91	34,82	33,20	12,06
	Contractors	103,74	128,31	74,91	*97,67*	6,99	64,03	71,28	37,65	23,04	59,09	13,05
	Combined	72,56	85,68	21,92	*41,69*	18,51	30,19	45,77	23,66	31,48	40,40	12,47

Note 1: ARPEL includes weekends and holidays in the definition of number of days away from work

Note 2: For the year 2006, one of the companies reported "Transport" and "Distribution" included under "Exploration and Production" and "Refining". For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

Table 8.1.3: Incidents' frequency rate with lost workdays by functional unit (ARPEL, 1997-2006)

Function	Data Category	ARPEL 1997	ARPEL 1998	ARPEL 1999	*ARPEL Weighted average (1997-1999)*	ARPEL 2000	ARPEL 2001	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006
E&P	Company	0,686	0,849	0,143	*0,325*	0,387	0,351	0,372	0,335	0,366	0,689	0,677
	Contractors	1,575	1,398	0,814	*1,153*	0,731	0,556	0,427	0,549	0,379	0,442	0,458
	Combined	1,244	1,038	0,287	*0,554*	0,517	0,448	0,402	0,419	0,374	0,499	0,530
Refining	Company	0,905	0,358	0,174	*0,258*	0,489	0,218	0,437	0,406	0,400	1,079	0,331
	Contractors	1,682	1,366	0,685	*1,102*	0,611	0,558	0,928	1,796	0,341	0,641	0,379
	Combined	1,247	0,601	0,233	*0,415*	0,506	0,267	0,536	0,608	0,381	0,858	0,348
Transport	Company	1,723	1,402	0,254	*0,587*	0,290	0,163	0,193	0,248	0,356	0,470	0,600
	Contractors	2,218	0,804	n/a	*1,355*	0,219	0,000	0,144	0,296	0,271	0,310	0,202
	Combined	1,924	1,281	0,254	*0,653*	0,273	0,141	0,184	0,255	0,310	0,437	0,339
Distribution	Company	1,208	0,547	0,116	*0,274*	1,528	2,358	0,818	0,823	0,401	0,484	0,624
	Contractors	n/a	0,925	0,219	*0,500*	0,314	0,268	0,299	0,320	0,201	0,189	0,263
	Combined	1,208	0,603	0,129	*0,343*	1,086	1,966	0,637	0,658	0,328	0,327	0,445
Others	Company	0,416	0,419	0,045	*0,146*	0,345	0,551	0,530	0,351	0,300	0,330	0,203
	Contractors	1,742	1,465	0,558	*1,085*	0,486	0,704	0,324	1,184	0,210	0,170	0,181
	Combined	1,163	0,914	0,111	*0,399*	0,412	0,629	0,452	0,414	0,242	0,248	0,189
Total	Company	0,874	0,643	0,124	*0,280*	0,534	0,595	0,455	0,411	0,368	0,637	0,463
	Contractors	1,671	1,364	0,719	*1,116*	0,563	0,557	0,452	0,678	0,311	0,390	0,363
	Combined	1,270	0,869	0,220	*0,472*	0,543	0,581	0,454	0,482	0,336	0,480	0,405

Note: For the year 2006, one of the companies reported "Transport" and "Distribution" included under "Exploration and Production" and "Refining". For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

Table 8.1.4: Fatal incidents' rate by functional unit (ARPEL, 1997-2006)

Function	Data Category	ARPEL 1997	ARPEL 1998	ARPEL 1999	*ARPEL Weighted average (1997-1999)*	ARPEL 2000	ARPEL 2001	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006
E&P	Company	0,009	0,016	0,001	*0,005*	0,015	0,016	0,006	0,005	0,006	0,006	0,002
	Contractors	0,027	0,021	0,051	*0,036*	0,013	0,018	0,014	0,019	0,014	0,008	0,009
	Combined	0,020	0,017	0,012	*0,014*	0,014	0,018	0,011	0,014	0,011	0,007	0,006
Refining	Company	0,000	0,009	0,005	*0,006*	0,003	0,003	0,006	0,005	0,005	0,012	0,006
	Contractors	0,006	0,046	0,013	*0,022*	0,019	0,030	0,030	0,018	0,008	0,015	0,021
	Combined	0,003	0,018	0,006	*0,008*	0,005	0,010	0,013	0,009	0,006	0,013	0,011
Transport	Company	0,017	0,017	0,000	*0,005*	0,005	0,000	0,003	0,004	0,008	0,000	0,008
	Contractors	0,025	0,050	0,058	*0,049*	0,067	0,079	0,013	0,011	0,011	0,008	0,000
	Combined	0,020	0,024	0,005	*0,011*	0,020	0,011	0,008	0,007	0,010	0,005	0,003
Distribution	Company	0,000	0,024	0,000	*0,005*	0,005	0,005	0,005	0,005	0,002	0,003	0,000
	Contractors	n/a	0,185	0,082	*0,123*	0,000	0,017	0,010	0,023	0,017	0,049	0,014
	Combined	0,000	0,048	0,010	*0,018*	0,003	0,007	0,007	0,012	0,007	0,020	0,007
Others	Company	0,000	0,002	0,000	*0,001*	0,000	0,007	0,003	0,000	0,002	0,000	0,002
	Contractors	0,024	0,025	0,021	*0,023*	0,009	0,010	0,011	0,008	0,004	0,009	0,004
	Combined	0,013	0,013	0,003	*0,006*	0,004	0,009	0,008	0,006	0,003	0,006	0,003
Total	Company	0,004	0,012	0,001	*0,004*	0,007	0,009	0,005	0,004	0,004	0,006	0,003
	Contractors	0,021	0,035	0,040	*0,035*	0,015	0,019	0,015	0,016	0,011	0,012	0,009
	Combined	0,013	0,019	0,008	*0,011*	0,009	0,013	0,010	0,011	0,008	0,009	0,007

Note: For the year 2006, one of the companies reported "Transport" and "Distribution" included under "Exploration and Production" and "Refining". For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

8.2 Tabulated results: Offshore Activities for the companies, contractors, and combined

Please refer below for the tables with the data utilized to generate the corresponding graphic for each incidents´ rate discussed in chapter 3.0, for the term 1997/2006.

Table 8.2.1: Offshore Activities – Incidents´ rates by functional unit (ARPEL, 1997-2006)

Function	Data Category	1 Total Incidents' Rate ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006	2 Incidents' Gravity Rate ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2006	ARPEL 2006
E&P	Company	1,196	0,559	0,408	0,405	0,595	0,640	0,559	53,96	15,35	22,48	22,84	25,30	20,65	15,85
	Contractors	9,241	1,137	0,472	0,291	0,679	0,670	0,325	n/a	13,90	10,18	2,26	2,12	16,21	5,72
	Combined	1,252	0,821	0,444	0,346	0,623	0,433	0,653	53,96	14,69	17,16	22,05	24,49	19,47	10,42
Total	Company	1,196	0,559	0,408	0,405	0,595	0,640	0,559	53,96	15,35	22,48	22,84	25,30	20,65	15,85
	Contractors	9,241	1,137	0,472	0,291	0,679	0,670	0,325	n/a	13,90	10,18	2,26	2,12	16,21	5,72
	Combined	1,252	0,821	0,444	0,346	0,623	0,433	0,653	53,96	14,69	17,16	22,05	24,49	19,47	10,42

Function	Data Category	3 Incidents' Frequency Rate with Lost Workdays ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2006	ARPEL 2005	4 Fatal Incidents' Rate ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006
E&P	Company	1,186	0,373	0,348	0,393	0,65	1,49	0,47	0,005	n/a	n/a	0,012	0,004	0,000	0,000
	Contractors	9,241	0,674	0,402	0,205	0,54	0,57	0,24	0,000	0,093	0,010	0,019	0,034	0,009	0,002
	Combined	1,243	0,509	0,379	0,386	0,61	0,92	0,35	0,005	0,093	0,010	0,016	0,014	0,004	0,001
Total	Company	1,186	0,373	0,348	0,393	0,65	1,49	0,47	0,005	n/a	n/a	0,012	0,004	0,000	0,000
	Contractors	9,241	0,674	0,402	0,205	0,54	0,57	0,24	0,000	0,093	0,010	0,019	0,034	0,009	0,002
	Combined	1,243	0,509	0,379	0,386	0,61	0,92	0,35	0,005	0,093	0,010	0,016	0,014	0,004	0,001

Note: Item 2: ARPEL includes weekends and holidays in the definition of number of days away from work.

8.3 Tabulated results: Safety proactive indicators

Please refer below for the tables with the data utilized to generate the corresponding graphic for each incidents´ rate discussed in chapter 5.0, for the term 1997/2006.

Table 8.3.1: Task planned observations rate by functional unit for companies (ARPEL, 2003/2006)

Functional Unit	TPO rate 2003	TPO rate 2004	TPO rate 2005	TPO rate 2006
Exploration and Production	6,19	10,36	1,83	1,07
Refining	2,04	1,78	2,21	0,99
Transport	0,17	0,28	1,18	1,59
Distribution	0,01	1,80	2,63	1,36
Others	0,00	0,01	0,28	1,44
Total	3,22	4,51	1,96	1,15

Note 1: One company reported consolidated data for company and contractors.

Note 2: For the year 2006, one of the companies reported “Transport” and “Distribution” included under “Exploration and Production” and “Refining”. For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

Table 8.3.2: Safety training intensity rate by functional unit for companies (ARPEL, 2003/2006)

Functional Unit	STI rate 2003	STI rate 2004	STI rate 2005	STI rate 2006
Exploration and Production	0,95	1,36	0,62	0,21
Refining	0,62	0,56	0,29	0,26
Transport	0,20	0,78	0,10	2,54
Distribution	0,06	0,39	0,08	0,15
Others	7,43	0,17	0,19	0,11
Total	2,00	0,76	0,36	0,24

Note 1: One company reported consolidated data for company and contractors.

Note 2: For the year 2006, one of the companies reported “Transport” and “Distribution” included under “Exploration and Production” and “Refining”. For this reason, data from this company corresponding to Transport and Distribution should be included in Exploration and Production and Refining in order to calculate the indicators, instead of being considered separately (as it did for the rest of the companies).

8.4 Tabulated results – fatality causes – ARPEL 2003-2006

Table 8.4.1: Fatality Causes – totals for ARPEL Member Companies and their Contractors – term 2003/2006

Fatality Causes	Percentage of fatalities					
	2001	2002	2003	2004	2005	2006
Vehicle accident	14%	14%	14%	14%	14%	14%
Other Transportation	14%	14%	14%	14%	14%	14%
Fires and Explosions	14%	14%	14%	14%	14%	14%
Drowning	14%	14%	14%	14%	14%	14%
Caught In or Between	14%	14%	14%	14%	14%	14%
Struck by Equipment	14%	14%	14%	14%	14%	14%
Fall	14%	14%	14%	14%	14%	14%
Toxic Gas or Liquid	14%	14%	14%	14%	14%	14%
Electrocution	14%	14%	14%	14%	14%	14%
Other	14%	14%	14%	14%	14%	14%
TOTAL	100%	100%	100%	100%	100%	100%

9.0 APPENDIX B

9.1 Data regarding ARPEL Member Companies: Totals for companies

This table gathers all the information from ARPEL Member Companies that reported data for the year 2006. Indicators utilized in the incidents´ rates are calculated.

Table 9.1: Data regarding ARPEL Member Companies - Totals for companies (including offshore activities); data for the year 2006

1		2	3	4				5				6			
				Recordable cases				Extent and outcome of injuries and illnesses				Incidence Rates			
				a	b	c	d	e	f	g	h	i	j	k	l
								Cases of:			Number of				
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	107.169	250.918	668	45	2	719	1	833	183	17.923	0,573	14,57	0,677	0,002
Refining	2	108.035	246.935	620	11	7	656	5	399	226	15.456	0,532	12,82	0,331	0,006
Transport	3	11.862	25.648	146	0	1	147	1	72	18	1.126	1,149	9,38	0,600	0,008
Distribution	4	13.270	28.531	120	0	0	133	0	89	59	1.621	0,932	11,36	0,624	0,000
Others	5	50.842	113.011	248	2	1	252	0	111	51	3.081	0,447	5,63	0,203	0,002
Total		291.177	665.043	1.802	58	11	1.907	7	1.504	537	39.207	0,574	12,06	0,463	0,003

Notes:

- Item 5(h) (number of days away from work) includes all calendar days (including weekends and holidays).
- Because many companies reported incomplete data which could not be used to calculate all the incidents rates, it's only possible to calculate each rate from the corresponding hours worked, which don't necessarily match the value in column 3 (total reported). For that reason, it's impossible to obtain each rate's real value by applying the corresponding formula to data in tables 9.1 to 9.4 directly. For example, suppose company "A" reported 10,000 total hours worked (that are included in column 3 of tables 9.1 to 9.4) but suppose it didn't report data to calculate the Incidents´ gravity rate. Then, the 10,000 hours cannot be used to calculate this rate (that company could not be considered to calculate the Incidents´ gravity rate and the hours worked this company reported were not considered when calculating this rate).
- Recordable cases (column 4): The total doesn't necessarily match the sum of "Injuries" + "Illnesses" + "Fatalities" because some companies reported the total recordable cases without the corresponding splitting among Injuries, Illnesses and Fatalities. For that reason, in those cases the Total value can be greater than the sum of "Injuries" + "Illnesses" + "Fatalities".

9.2 Data regarding Contractors of ARPEL Member Companies: Totals for contractors – year 2006

This table gathers all the information from the Contractors of the ARPEL Member Companies that reported data for the year 2006. Indicators utilized in the incidents´ rates are calculated.

Table 9.2: Data regarding Contractors of ARPEL Member Companies - Totals for Contractors (including offshore activities); data for the year 2006

1		2	3	4				5				6			
				Recordable cases				Extent and outcome of injuries and illnesses				Incidence Rates			
				a	b	c	d	e	f	g	h	i	j	k	l
								Cases of:			Number of				
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	224.234	515.451	2.001	3	22	2.034	75	1.145	707	23.417	0,789	13,85	0,458	0,009
Refining	2	63.783	136.688	624	0	14	648	5	240	180	4.871	0,948	23,77	0,379	0,021
Transport	3	24.111	52.350	381	0	0	389	7	46	0	202	1,486	5,54	0,202	0,000
Distribution	4	14.860	28.150	79	0	2	89	1	37	37	720	0,632	6,92	0,263	0,014
Others	5	98.563	216.210	852	0	4	856	2	194	15	498	0,792	16,90	0,181	0,004
Total		425.550	948.849	3.937	3	42	4.016	90	1.662	939	29.708	0,846	13,05	0,363	0,009

Notes:

- Item 5(h) (number of days away from work) includes all calendar days (including weekends and holidays).
- Because many companies reported incomplete data which could not be used to calculate all the incidents rates, it's only possible to calculate each rate from the corresponding hours worked, which don't necessarily match the value in column 3 (total reported). For that reason, it's impossible to obtain each rate's real value by applying the corresponding formula to data in tables 9.1 to 9.4 directly. For example, suppose company "A" reported 10,000 total hours worked (that are included in column 3 of tables 9.1 to 9.4) but suppose it didn't report data to calculate the Incidents´ gravity rate. Then, the 10,000 hours cannot be used to calculate this rate (that company could not be considered to calculate the Incidents´ gravity rate and the hours worked this company reported were not considered when calculating this rate).
- Recordable cases (column 4): The total doesn't necessarily match the sum of "Injuries" + "Illnesses" + "Fatalities" because some companies reported the total recordable cases without the corresponding splitting among Injuries, Illnesses and Fatalities. For that reason, in those cases the Total value can be greater than the sum of "Injuries" + "Illnesses" + "Fatalities".

9.3 Data regarding ARPEL Member Companies: Offshore activities – year 2006

This table gathers all the information about offshore activities from ARPEL Member Companies that reported data for the year 2006. Indicators utilized in the incidents´ rates are calculated.

Table 9.3: Data regarding ARPEL Member Companies: Offshore activities; data for the year 2006

1		2	3	4				5				6			
				Recordable cases				Extent and outcome of injuries and illnesses				Incidence Rates			
				a	b	c	d	e	f	g	h	i	j	k	l
								Cases of:			Number of				
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	21826	69466	191	3	0	194	0	164	46	5506	0,559	15,85	0,472	0,000
Total		21826	69466	191	3	0	194	0	164	46	5506	0,559	15,85	0,472	0,000

Notes:

- Item 5(h) (number of days away from work) includes all calendar days (including weekends and holidays).
- Because many companies reported incomplete data which could not be used to calculate all the incidents rates, it's only possible to calculate each rate from the corresponding hours worked, which don't necessarily match the value in column 3 (total reported). For that reason, it's impossible to obtain each rate's real value by applying the corresponding formula to data in tables 9.1 to 9.4 directly. For example, suppose company "A" reported 10,000 total hours worked (that are included in column 3 of tables 9.1 to 9.4) but suppose it didn't report data to calculate the Incidents´ gravity rate. Then, the 10,000 hours cannot be used to calculate this rate (that company could not be considered to calculate the Incidents´ gravity rate and the hours worked this company reported were not considered when calculating this rate).
- Recordable cases (column 4): The total doesn't necessarily match the sum of "Injuries" + "Illnesses" + "Fatalities" because some companies reported the total recordable cases without the corresponding splitting among Injuries, Illnesses and Fatalities. For that reason, in those cases the Total value can be greater than the sum of "Injuries" + "Illnesses" + "Fatalities".

9.4 Data regarding Contractors of ARPEL Member Companies: Offshore activities – year 2006

This table gathers all the information about offshore activities from the contractors of the ARPEL Member Companies that reported data for the year 2006. Indicators utilized in the incidents´ rates are calculated

Table 9.4: Data regarding Contractors of ARPEL Member Companies: Offshore activities; data for the year 2006

1		2	3	4				5				6			
				Recordable cases				Extent and outcome of injuries and illnesses				Incidence Rates			
				a	b	c	d	e	f	g	h	i	j	k	l
								Cases of:			Number of				
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	35856	80078	129	0	1	130	0	96	33	2289	0,325	5,72	0,240	0,002
Total		35856	80078	129	0	1	130	0	96	33	2289	0,325	5,72	0,240	0,002

Notes:

- Item 5(h) (number of days away from work) includes all calendar days (including weekends and holidays).
- Because many companies reported incomplete data which could not be used to calculate all the incidents rates, it's only possible to calculate each rate from the corresponding hours worked, which don't necessarily match the value in column 3 (total reported). For that reason, it's impossible to obtain each rate's real value by applying the corresponding formula to data in tables 9.1 to 9.4 directly. For example, suppose company "A" reported 10,000 total hours worked (that are included in column 3 of tables 9.1 to 9.4) but suppose it didn't report data to calculate the incidents´ gravity rate. Then, the 10,000 hours cannot be used to calculate this rate (that company could not be considered to calculate the incidents´ gravity rate and the hours worked this company reported were not considered when calculating this rate).
- Recordable cases (column 4): The total doesn't necessarily match the sum of "Injuries" + "Illnesses" + "Fatalities" because some companies reported the total recordable cases without the corresponding splitting among Injuries, Illnesses and Fatalities. For that reason, in those cases the Total value can be greater than the sum of "Injuries" + "Illnesses" + "Fatalities".

10.0 APPENDIX C

Formulas to calculate incidence rates

Following are shown the formulas utilized to calculate each one of the incidents´ rate indicators.

1. Total incidents' rate

$$= \frac{Column4(d) * 200}{Column3}$$

Where:
Column 4(d) = total recordable cases
Column 3 = hours worked (in thousands)

2. Incidents' gravity rate

$$= \frac{Column5(h) * 200}{Column3}$$

Where:
Column 5(h) = number of days away from work
Column 3 = hours worked (in thousands)

Note: The ARPEL definition of Column 5(h) includes all calendar days (including weekends and holidays).
The API definition of Column 5(h) excludes weekends and holidays, unless the employee has been to work.

3. Incidents' frequency rate with lost workdays

$$= \frac{Column5(f) * 200}{Column3}$$

Where:
Column 5(f) = cases of lost workdays.
Column 3 = hours worked (in thousands)

4. Fatal incidents' rate

$$= \frac{Column4(c) * 200}{Column3}$$

Where:
Column 4(c) = number of fatalities
Column 3 = hours worked (in thousands)

5. Task planned observations rate

$$= \frac{Column2(a)}{Column2(b)}$$

Where:
Column 2(a) = number of task planned observations (cumulative)
Column 2(b) = average number of workers (company)

6. Safety training intensity rate

$$= \left[\frac{Column3(d)}{Column3(e) * 1000} \right] * 100$$

Where:
Column 3(d) = Safety training hours (cumulative)
Column 2(b) = hours worked (in thousands)

ARPEL

Regional Association of Oil and Natural Gas Companies in Latin America and the Caribbean

Established in 1965, ARPEL is an association of 29 state owned and private oil and gas companies and institutions with operations in Latin America and the Caribbean, which represent more than 90 percent of the Region's upstream and downstream operations. Since 1976, ARPEL holds formal UN-ECOSOC special consultative status.

ARPEL works together with its members –through its various Committees and Working Groups- on issues that contribute to sustainable development in the Region:

- *Economic issues*: regional energy integration, pipelines and terminals, downstream and fuels
- *Environmental issues*: climate change, atmospheric emissions, oil spill contingency plans and best practices in environment and occupational health and safety management.
- *Social issues*: corporate social responsibility and relations with indigenous peoples

ARPEL develops a proactive attitude on issues of interest to the industry and produces documents representing the views of its members. It also promotes interaction among its members and with governments building alliances and establishing agreements with international organizations with the aim of presenting and developing a regional perspective. To accomplish its objectives, ARPEL organizes regional workshops and symposia to share information and best practices and develops technical documentation for capacity building and information exchange on the issues of interest to its members. To support its management ARPEL has an interactive Portal in which all documents developed by ARPEL Technical Committees and Working Groups are available for its Members. This tool also facilitates the virtual interaction within the ARPEL community and with those stakeholders that interrelate with it.

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