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

2007 STATISTICS FOR ARPEL MEMBER COMPANIES

ARPEL REPORT

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2007 STATISTICS FOR ARPEL MEMBER COMPANIES

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ARPEL
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1.0 EXECUTIVE SUMMARY

One of the activities of the Environment, Health and Safety Committee 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 eleventh annual compilation of data 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 in 2007 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° 409 about Safety Performance Indicators for the year 2007, 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 2007 (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

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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.*

following chapters correspond to the ARPEL User's Manual, 4th Edition (2004). Fatality causes are also analyzed, both for the year 2007 and compared to previous years.

Fourteen ARPEL Member Companies reported Contractors data and six reported data on offshore activities, out of eighteen Member Companies that reported data for the year 2007.

Table 1.0: List of the companies that provided data to the 2007 Study on Incidents Statistics in the Oil and Gas Industry in Latin America and the Caribbean.

ANCAP	PETROECUADOR
CHEVRON	PETROPERU
ECOPETROL	PETROTRIN
ENAP	RECOPE
PAN AMERICAN ENERGY	REPSOLYPF
PCJ	STAATSOLIE
PDVSA	STATOILHYDRO
PEMEX	TOTAL
PETROBRAS	WINTERSHALL

1.1 Selected results for the year 2007

- The total Hours Worked (in thousands) reported in this report is of 1,750,332, considering both Company Workers and Contractors, and corresponds to 18 Member Companies.
- The Total Incidents Rate (for all functional units), combining companies and contractors, was of 0.748 incidents by 200,000 hours worked (Companies only: 0.716. Contractors only: 0.768). The function with the largest number of incidents was "Refining" for Contractors, with 1.123 incidents by 200,000 hours worked.
- On average for all functional units, the workers of the Company lost 10.99 days by 200,000 hours worked, compared to 16.71 lost workdays by Contractors. As in the three previous years (2004-2006), "Refining" (considering Contractors) was the functional unit that lost more workdays, with 32.17 lost workdays by 200,000 hours worked.
- The Incidents' Frequency Rate with lost workdays, considering all functional units combined (Company and Contractors), corresponds to 0.424 lost workdays cases by 200,000 hours. (Companies only: 0.496. Contractors only: 0.367)
- The oil sector that recorded the largest number of fatalities in 2007 was "Distribution" for Contractors, with 0.022 fatalities by 200,000 hours worked. This value corresponds to almost three times the value for all functional units combined (Company + Contractors): 0.008 fatalities by 200,000 hours worked.
- None of the Companies that participated in this report recorded fatalities in "Transport" and "Distribution" for the workers of the Company during 2007.
- Workers of the Company performed better than Contractors regarding the Fatal Incidents' Rate, except for "Exploration and Production".
- Fatalities in 2007 were mainly caused by "Drowning", causing the 34% of fatalities

considering both the workers of the company and contractors.

- Being this the fifth year in which safety proactive indicators are included in the incidents statistics, eleven companies reported data for the Task Planned Observations Rate and fifteen for the Safety Training Intensity Rate
- During 2007, 1.12 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 (1.19 training hours by 100 hours worked during 2007)

1.2 Selected comparative results for the term 1997/2007

- Both the number of companies that reported data for this report and the total number of reported hours worked are the largest ever recorded.

- The Total Incidents' Rate (that includes illnesses, injuries, and fatalities) showed a decreasing general tendency for the first years (until 2002), however, since then, for most of the functional units considering both the workers of the Company and Contractors its value seems to be constant, except in 2005 and 2006. Thus – on average for all functional units – the lowest values of this rate throughout the eleven years correspond to the period going from 2002 to 2004, for the workers of the company, contractors, and combined.

- The number of lost workdays in 2006 and 2007 are lower than in previous years for almost all functional units, and both for the workers of the company and the combined result.

- The Incidents´ Frequency Rate with lost workdays considering contractors shows a decreasing tendency until 2004 for all functional units in average. However, its value seems to have stabilized in the last four years.

- In the year 2007, the number of fatalities recorded by 200,000 hours worked for the functional unit "Exploration and Production" reached the highest value ever recorded in the eleven years term considered for the workers of the company. On the other hand, although in 2007 "Fires and Explosions" caused the lowest percentage number of fatalities in the period, it is still the main weighted fatality cause for the period 2001-2007.

- Offshore activities recorded the highest values of the Fatal Incidents' Rate for 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 has a decreasing tendency for the period 2004-2007.

- 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 1997/2007.

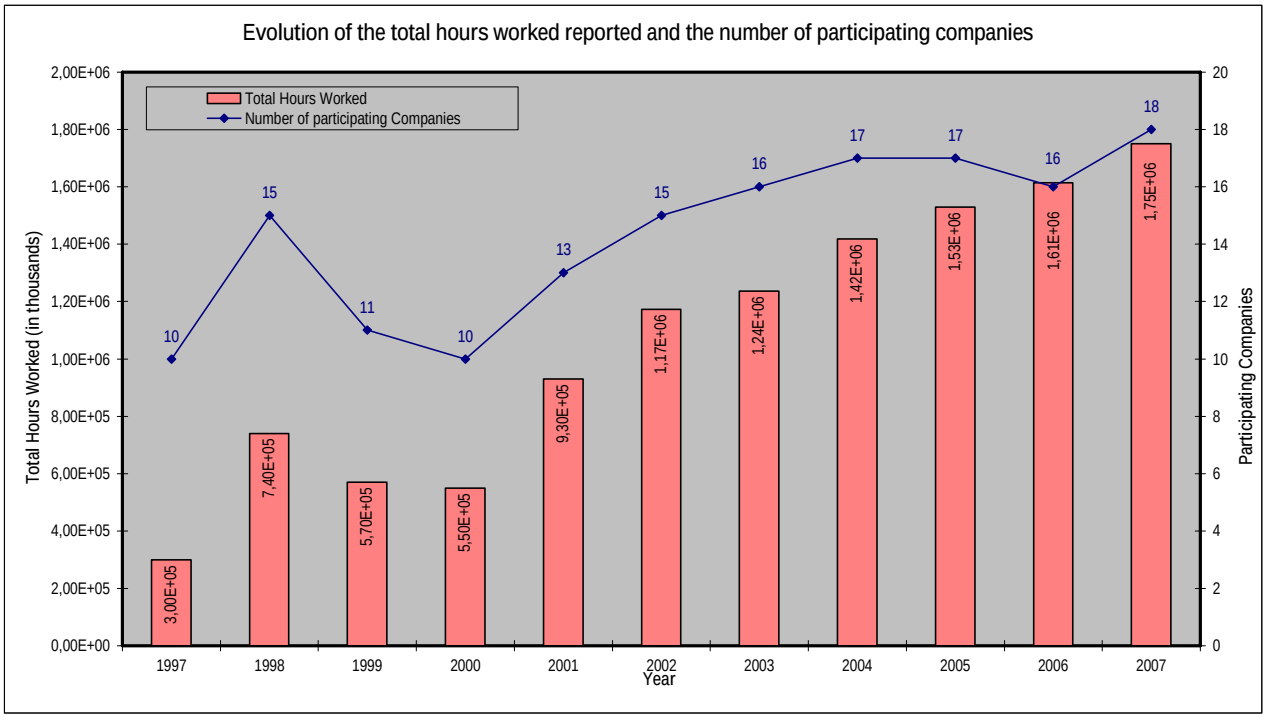

Figure 1.2

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.

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.

2.1 Total incidents' rate (by functional unit); data for the year 2007

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
E&P	13	781,687	781,687
Refining	13	312,150	312,150
Transport	10	113,533	113,533
Distribution	10	110,852	110,852
Others	10	432,110	432,110
Total	18	1,750,332	1,750,332

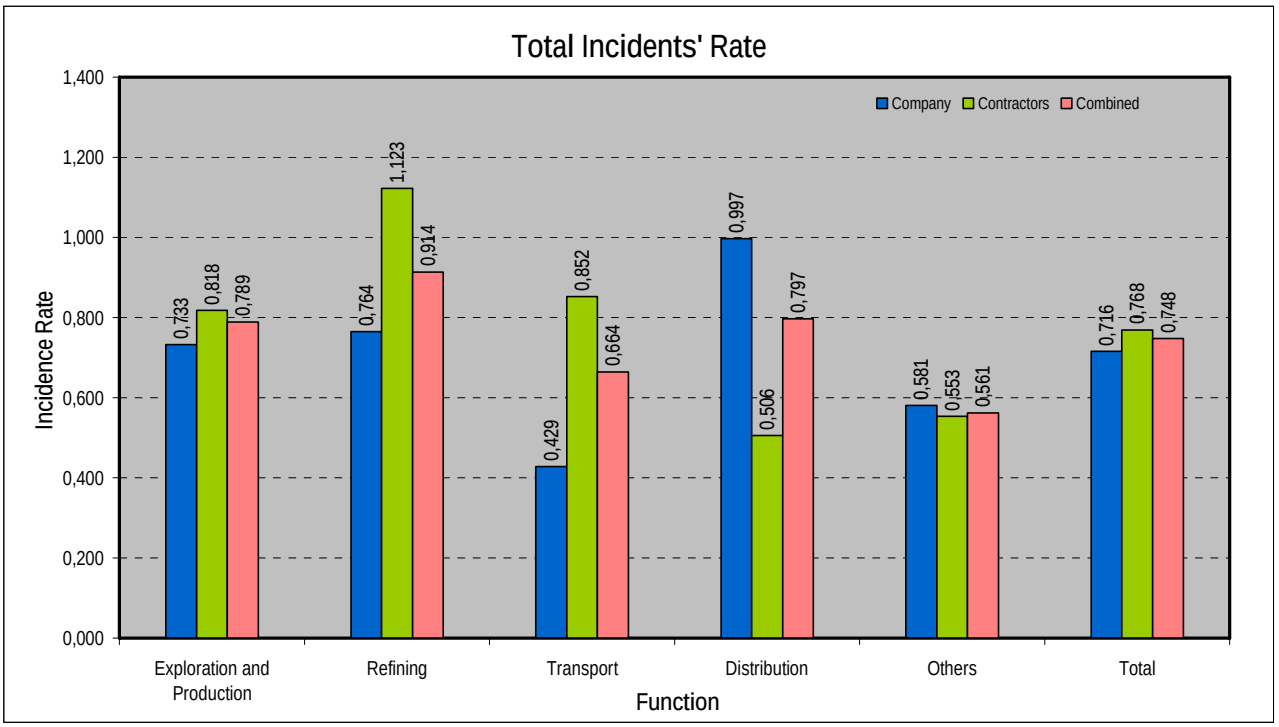

Figure 2.1

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

2.2.1 Company data

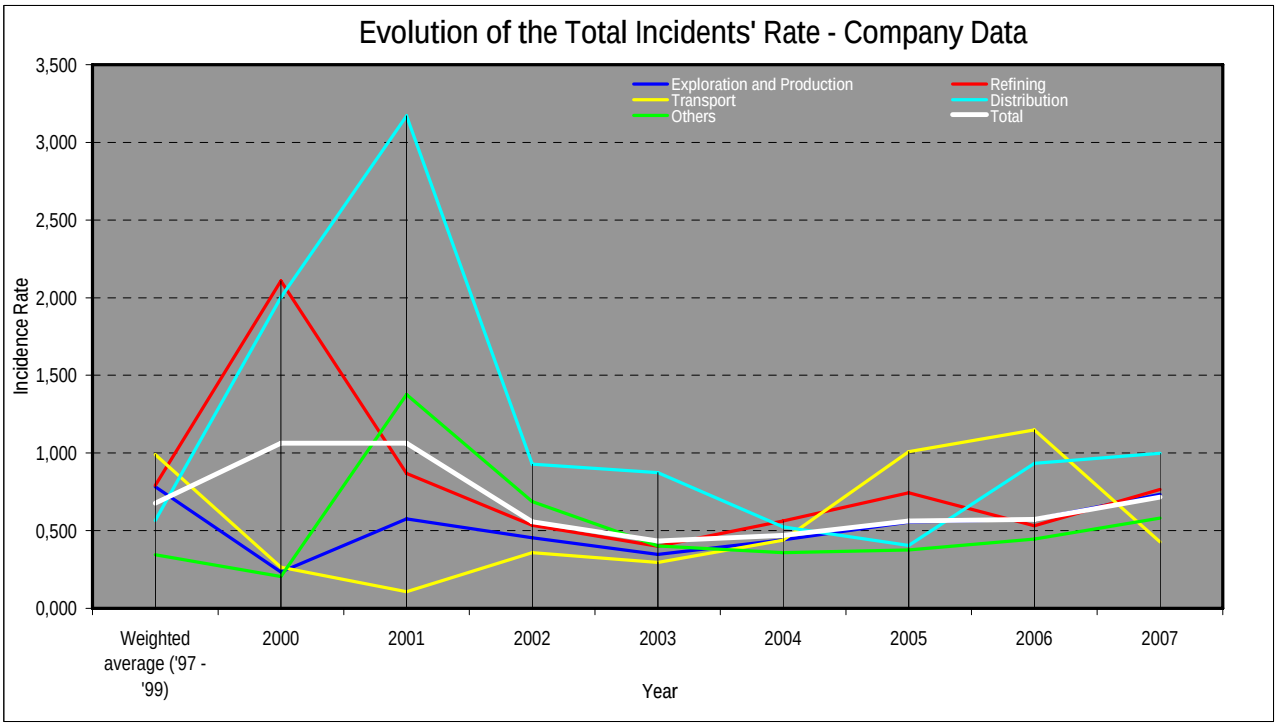

Figure 2.2.1

2.2.2 Contractors data

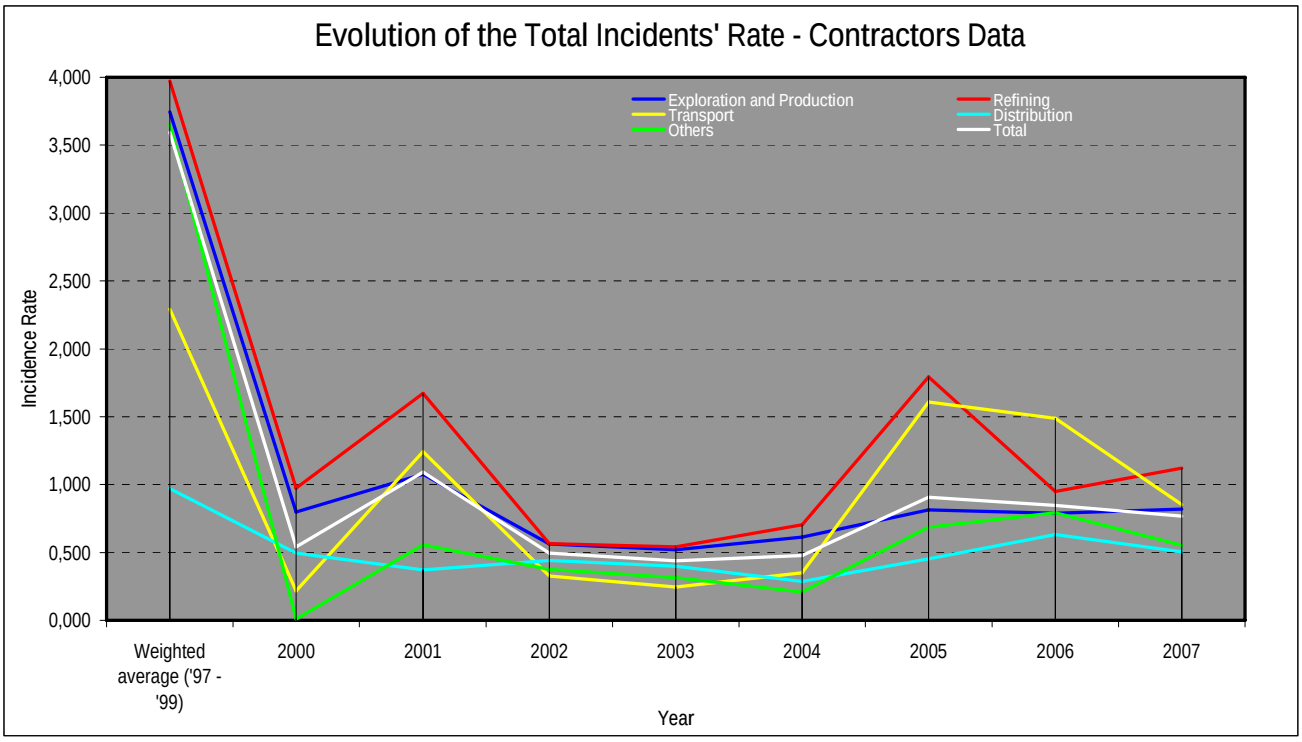

Figure 2.2.2

2.2.3 Combined data

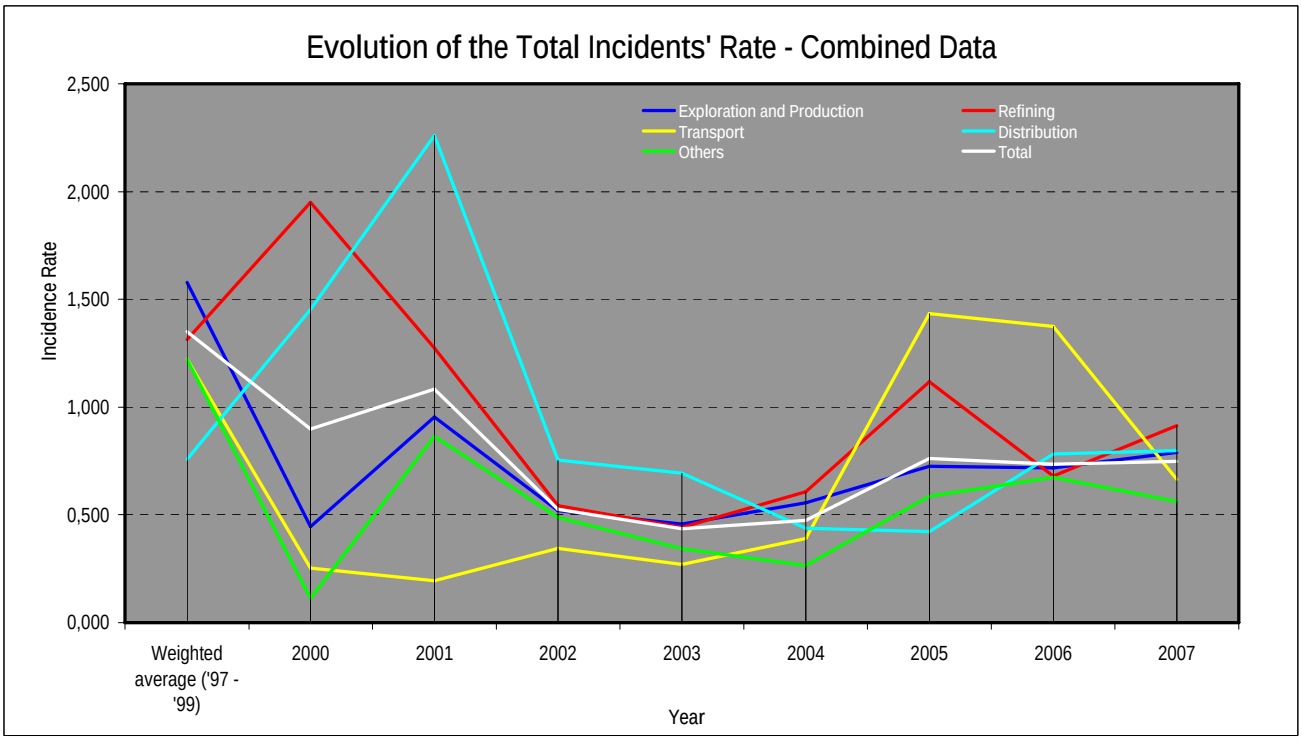

Figure 2.2.3

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 1997/2007. 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 this report
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
2007	18	18

2.3 Incidents' gravity rate (by functional unit); data for the year 2007

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
E&P	13	781,687	462,785
Refining	12	312,150	251,440
Transport	9	113,533	67,882
Distribution	10	110,852	90,000
Others	9	432,110	143,465
Total	18	1,750,332	1,016,173

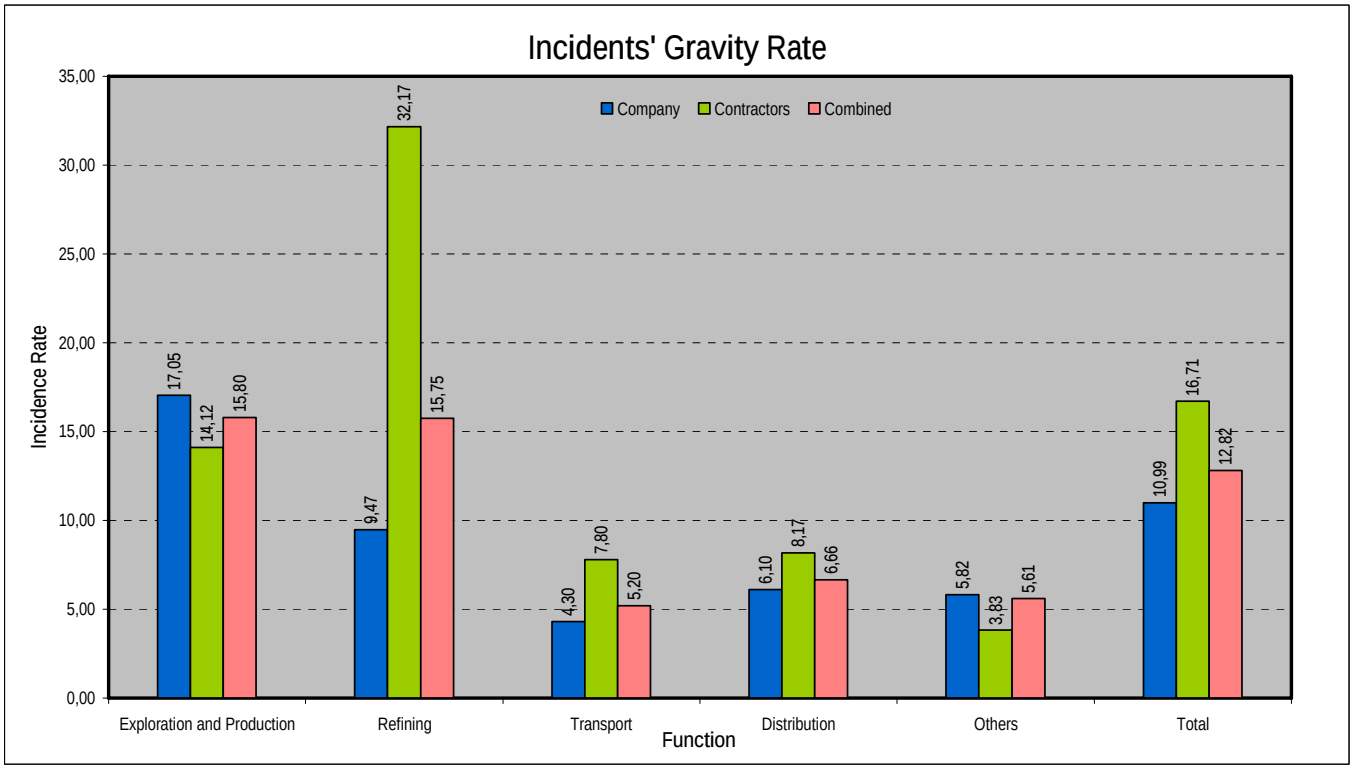

Figure 2.3

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

2.4.1 Company data

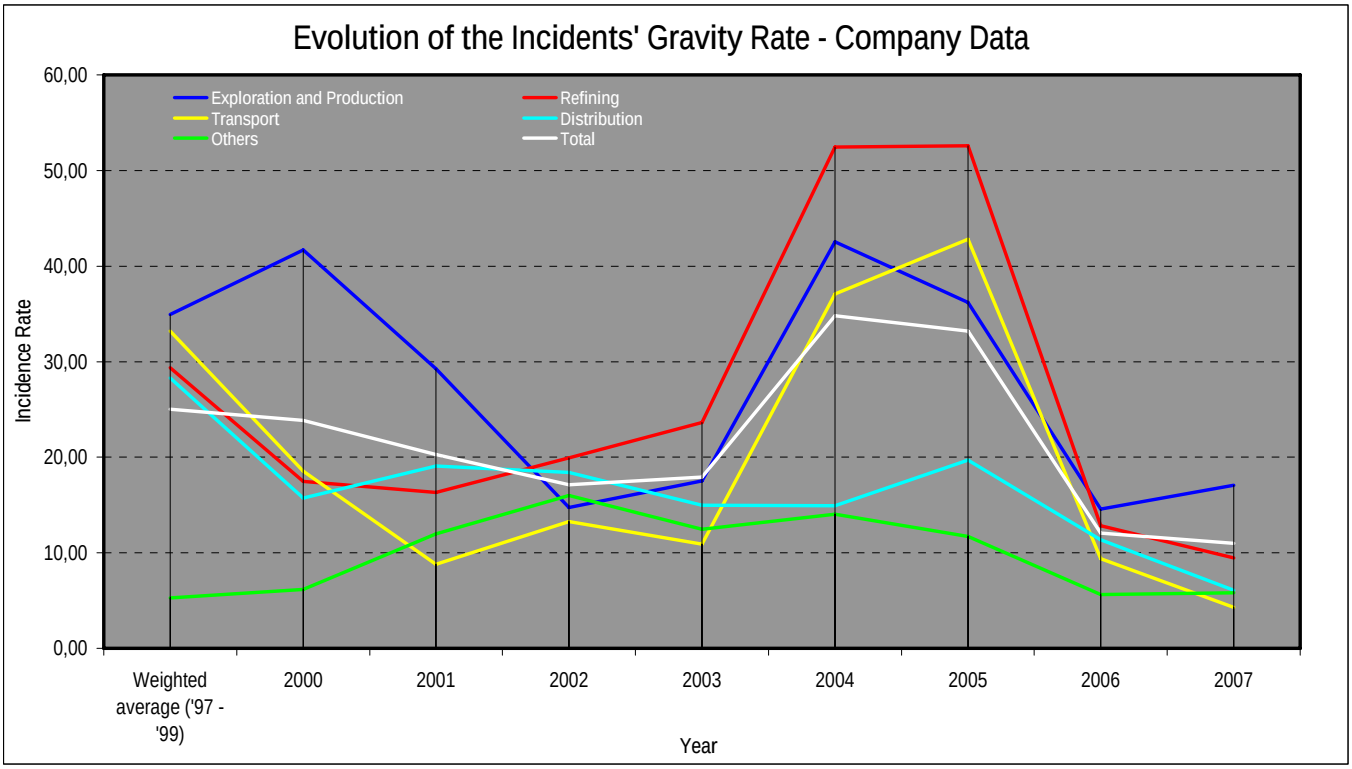

Figure 2.4.1

2.4.2. Contractors data

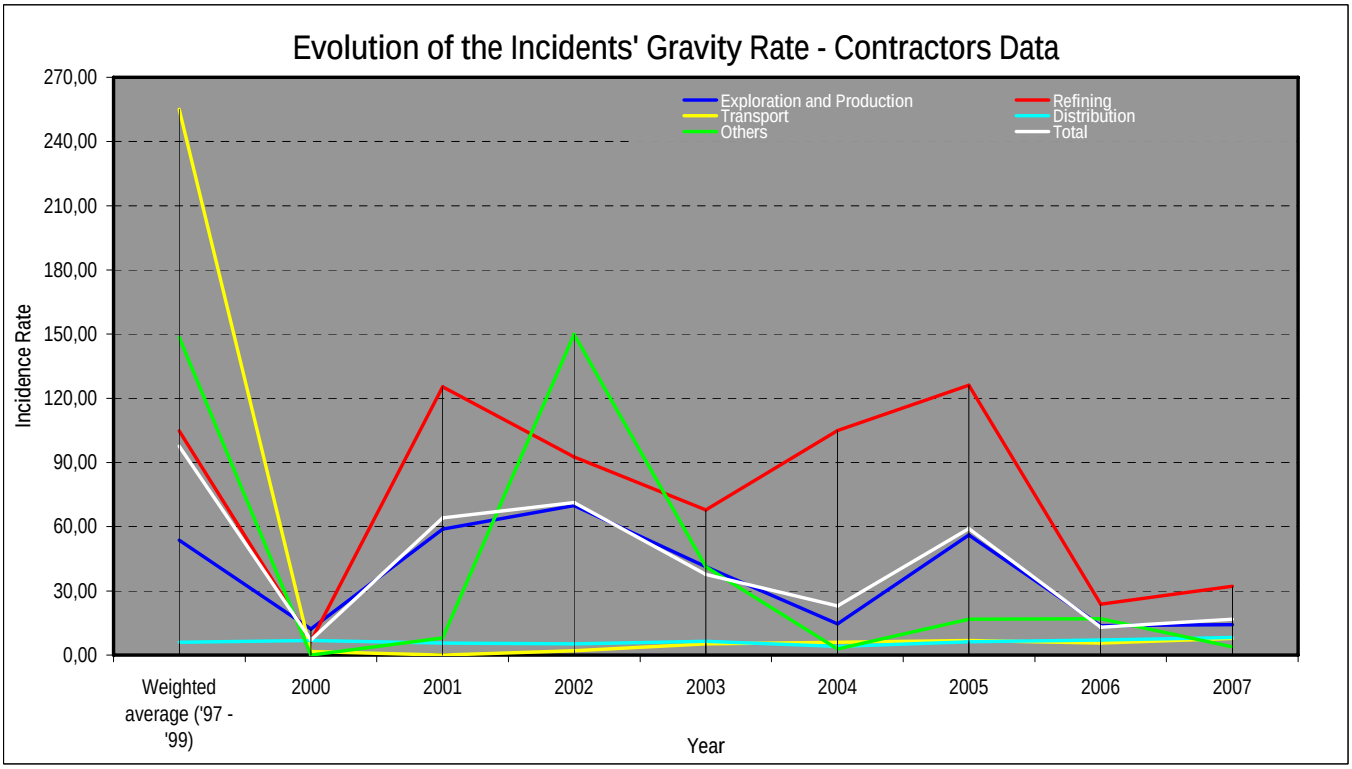

Figure 2.4.2

2.4.3 Combined data

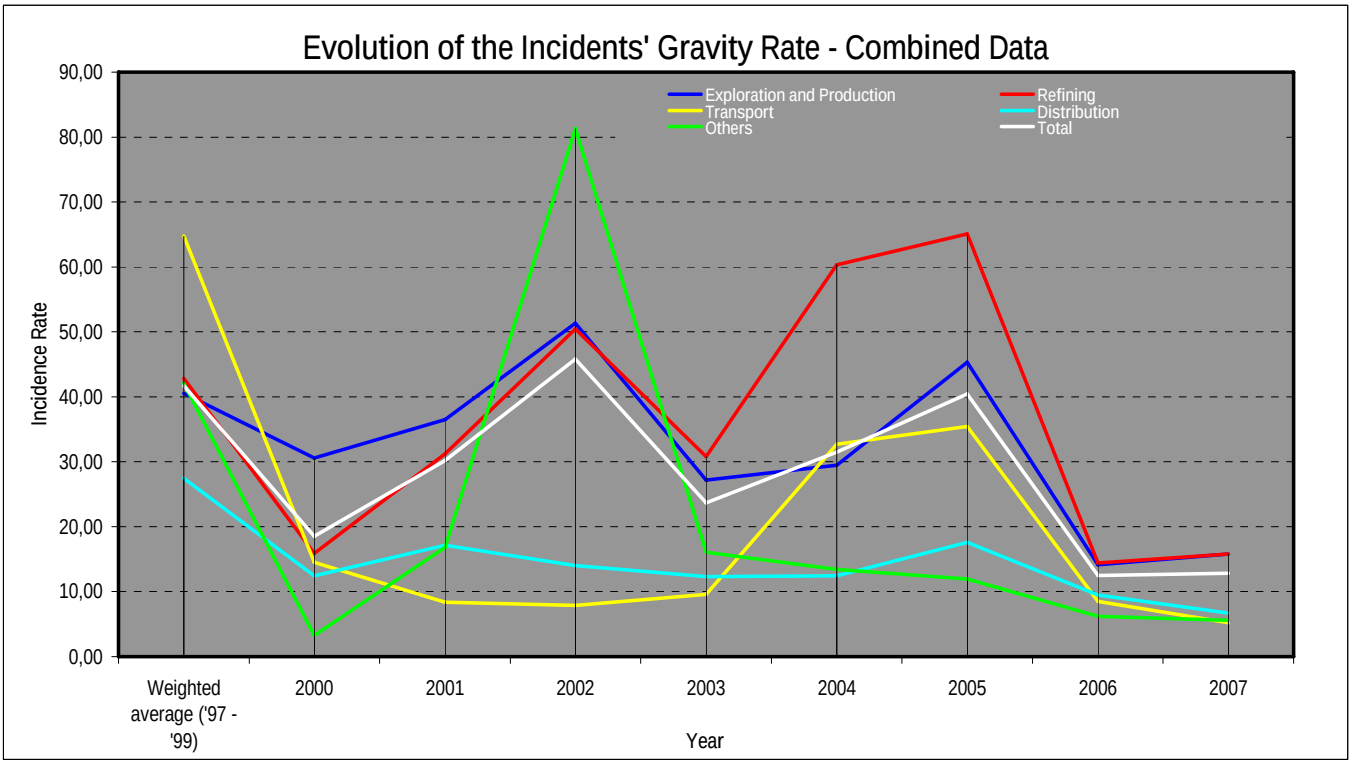

Figure 2.4.3

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 1997/2007. 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 this report
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
2007	18	18

2.5 Incidents' frequency rate with lost workdays (by functional unit); data for the year 2007

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

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

(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
E&P	13	781,687	638,552
Refining	12	312,150	302,174
Transport	9	113,533	111,723
Distribution	10	110,852	107,218
Others	9	432,110	399,960
Total	18	1,750,332	1,560,264

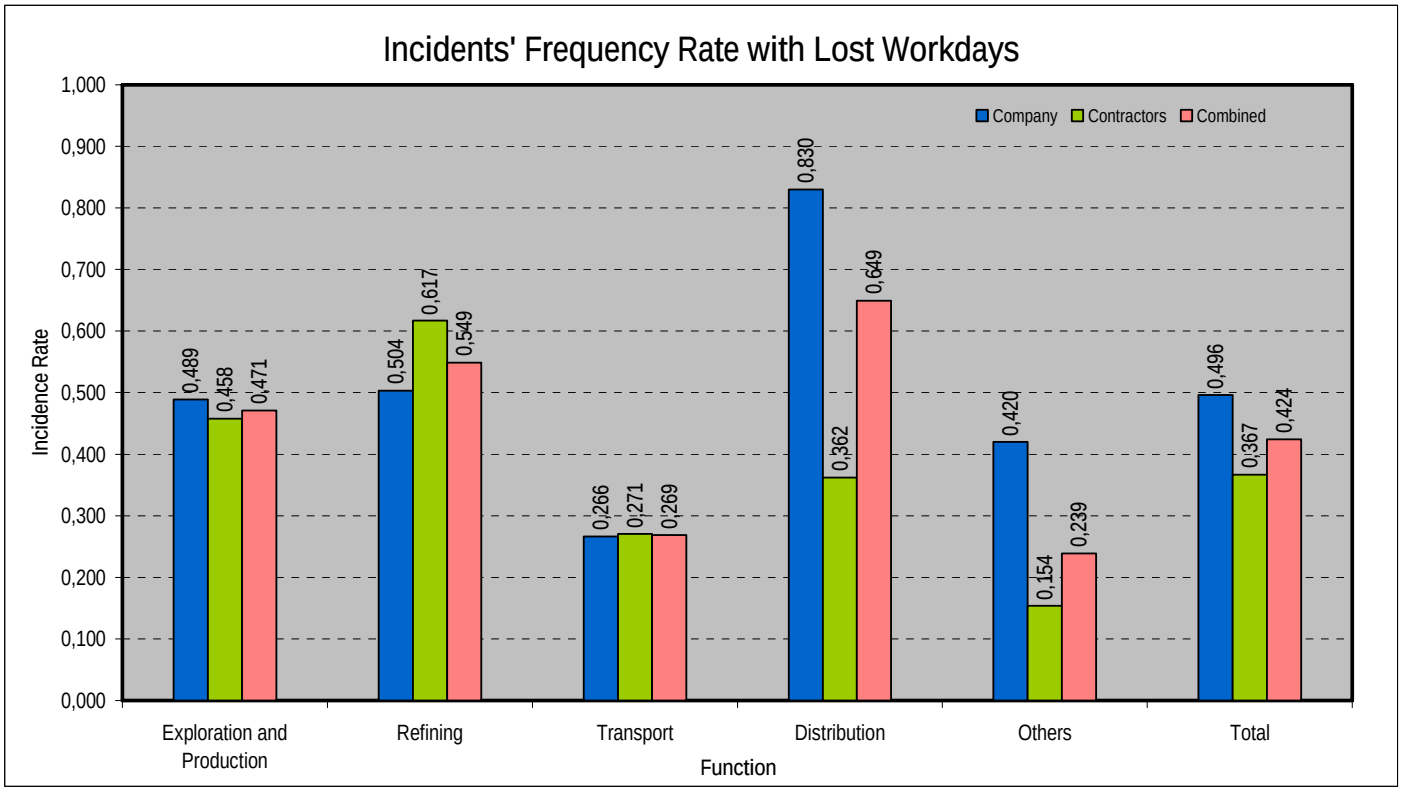

Figure 2.5

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

2.6.1 Company data

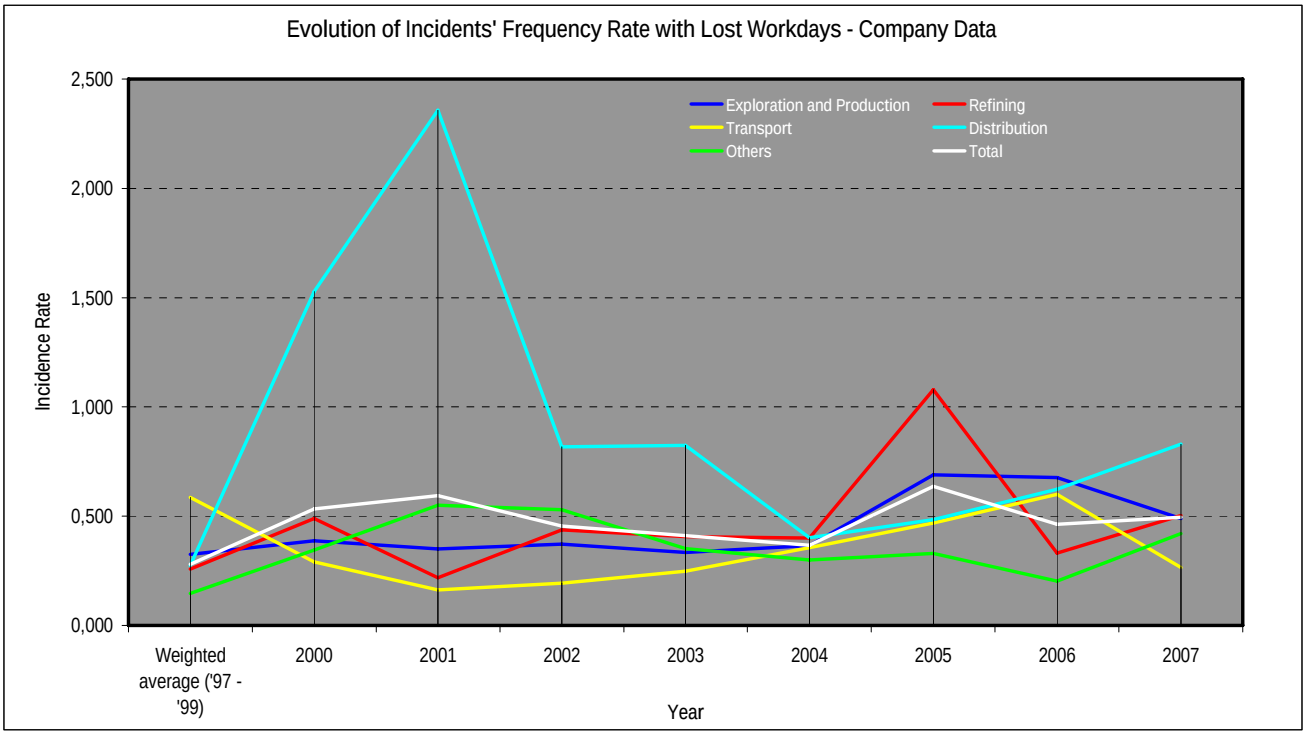

Figure 2.6.1

2.6.2 Contractors data

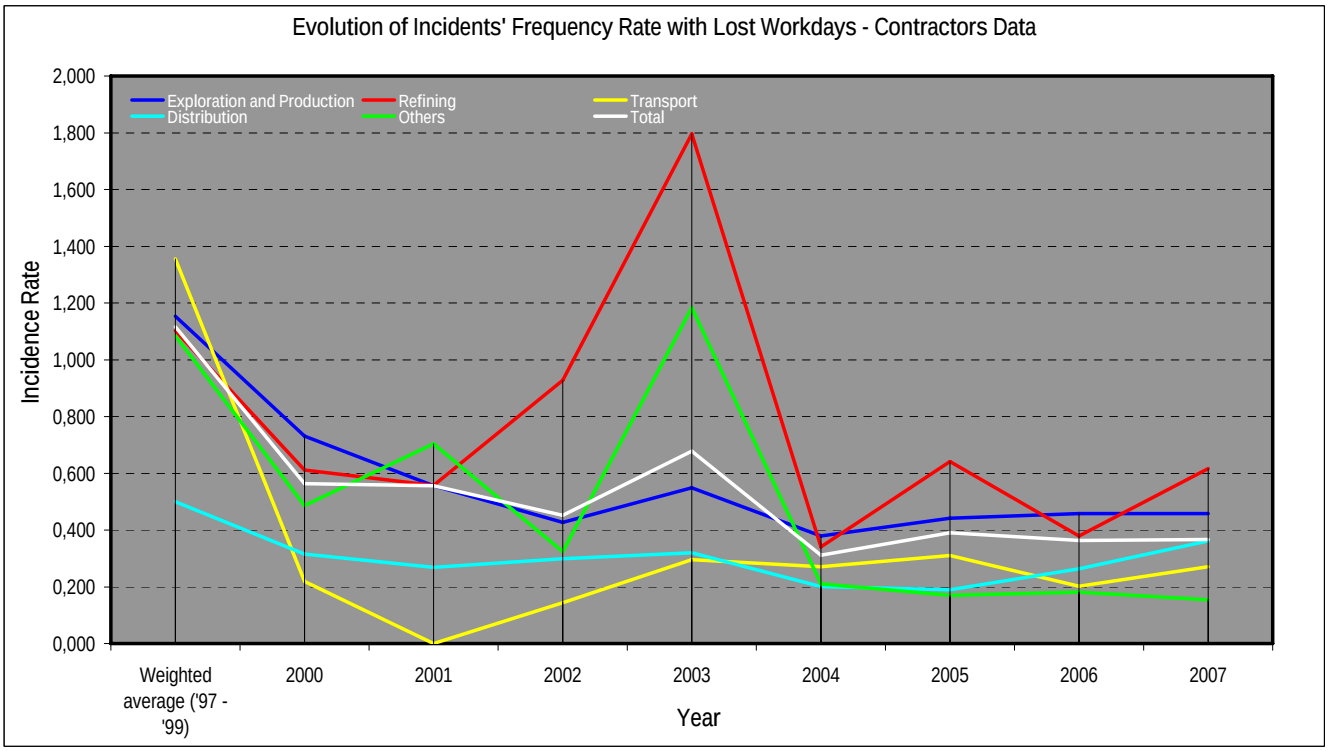

Figure 2.6.2

2.6.3 Combined data

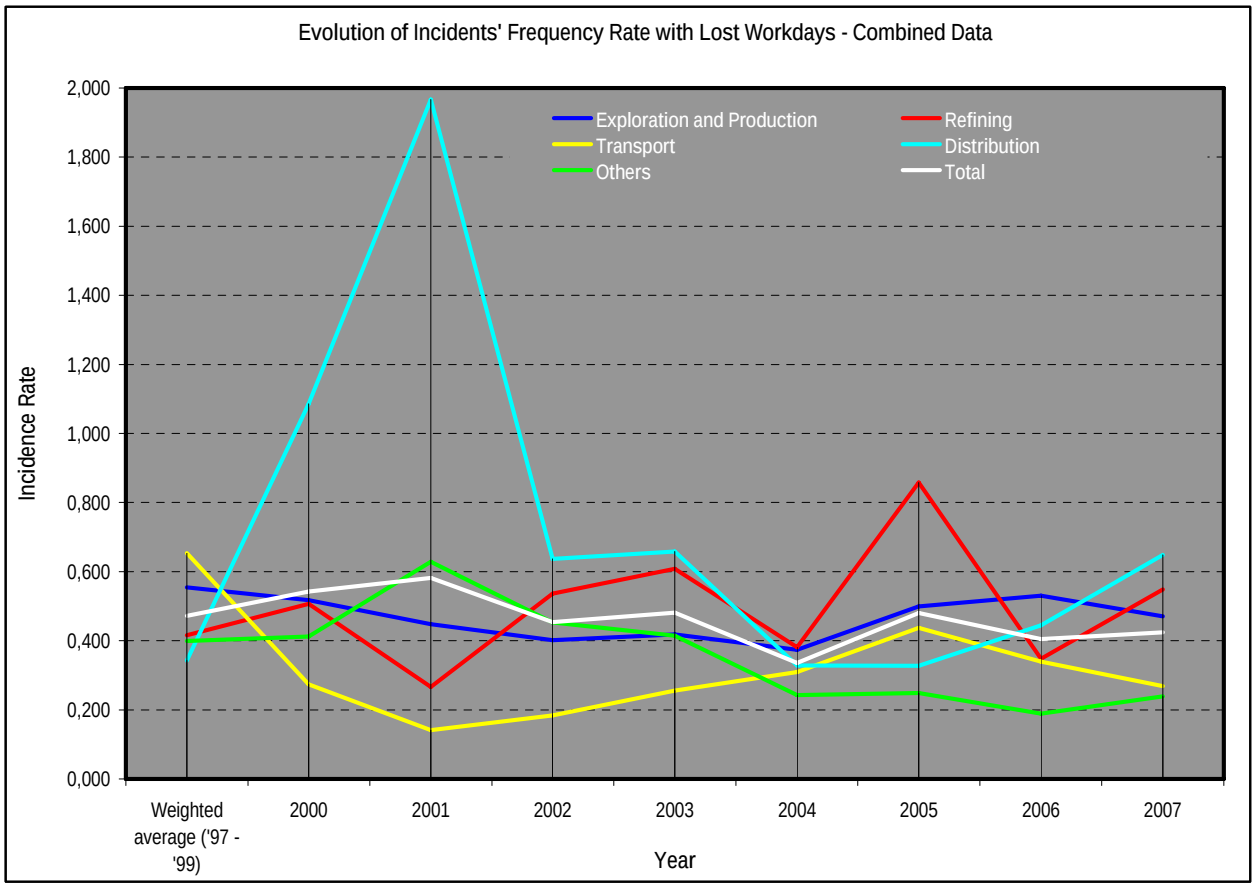

Figure 2.6.3

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 1997/2007. 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 this report
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
2007	18	18

2.7 Fatal incidents' rate (by functional unit); data for the year 2007

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
E&P	13	781,687	781,687
Refining	13	312,150	312,150
Transport	10	113,533	113,533
Distribution	10	110,852	110,852
Others	10	432,110	432,110
Total	18	1,750,332	1,750,332

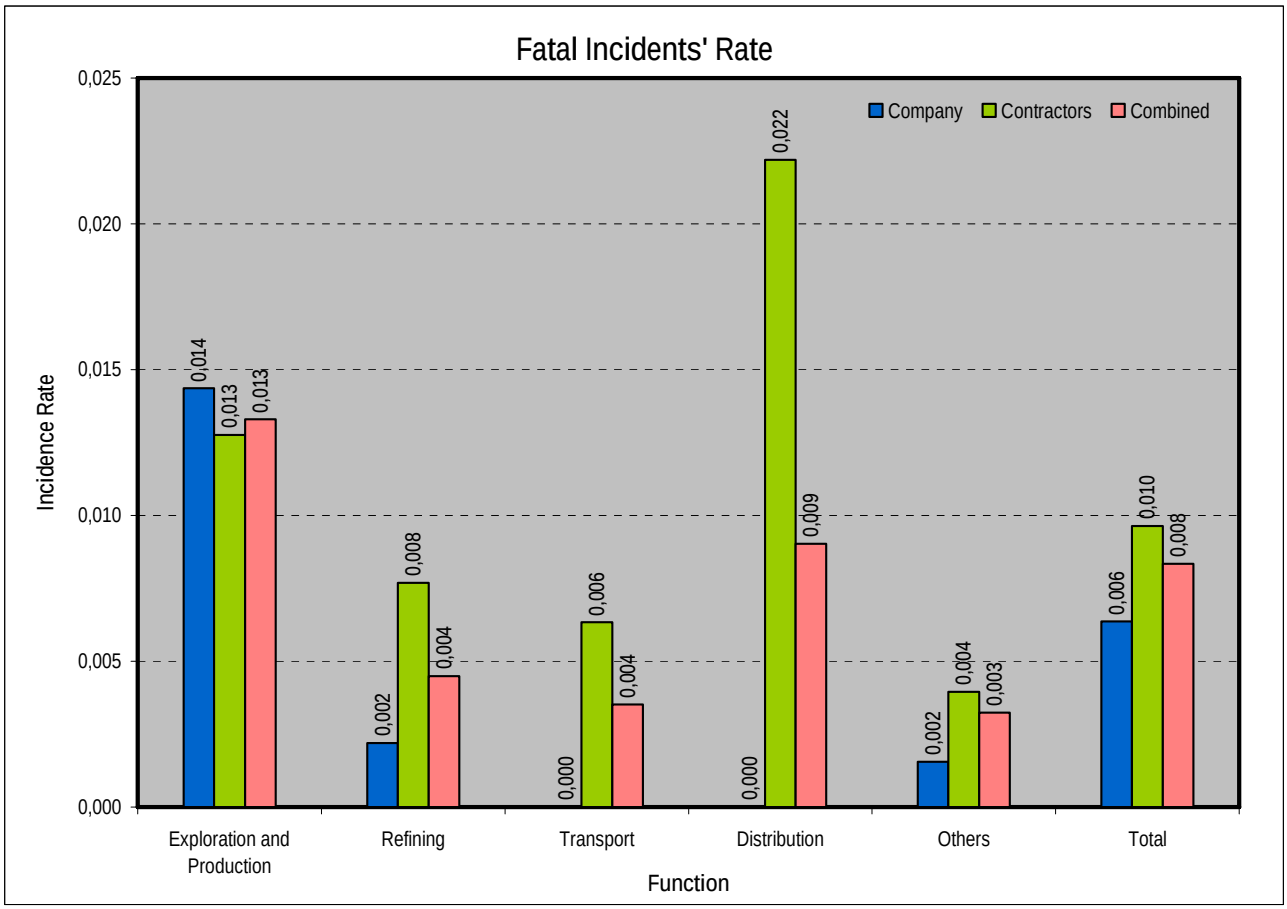

Figure 2.7

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

2.8.1 Company data

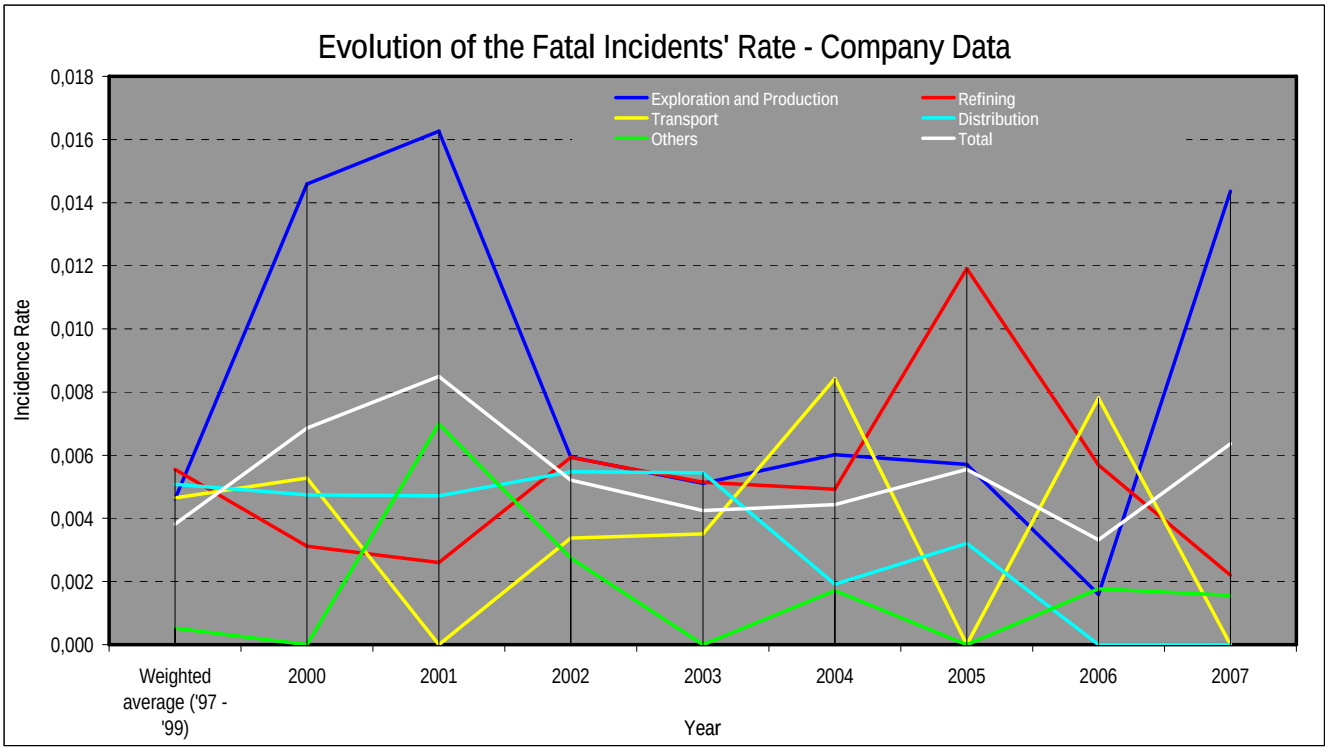

Figure 2.8.1

2.8.2 Contractors data

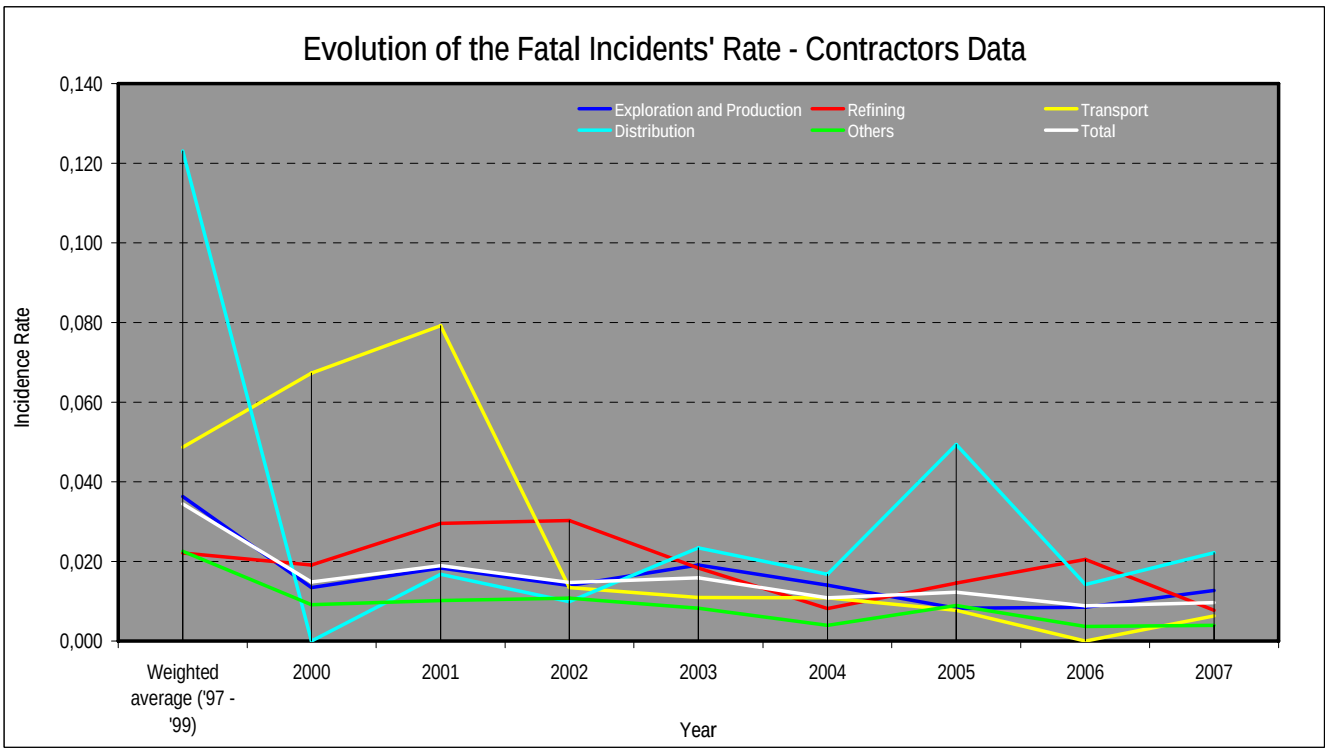

Figure 2.8.2

2.8.3 Combined data

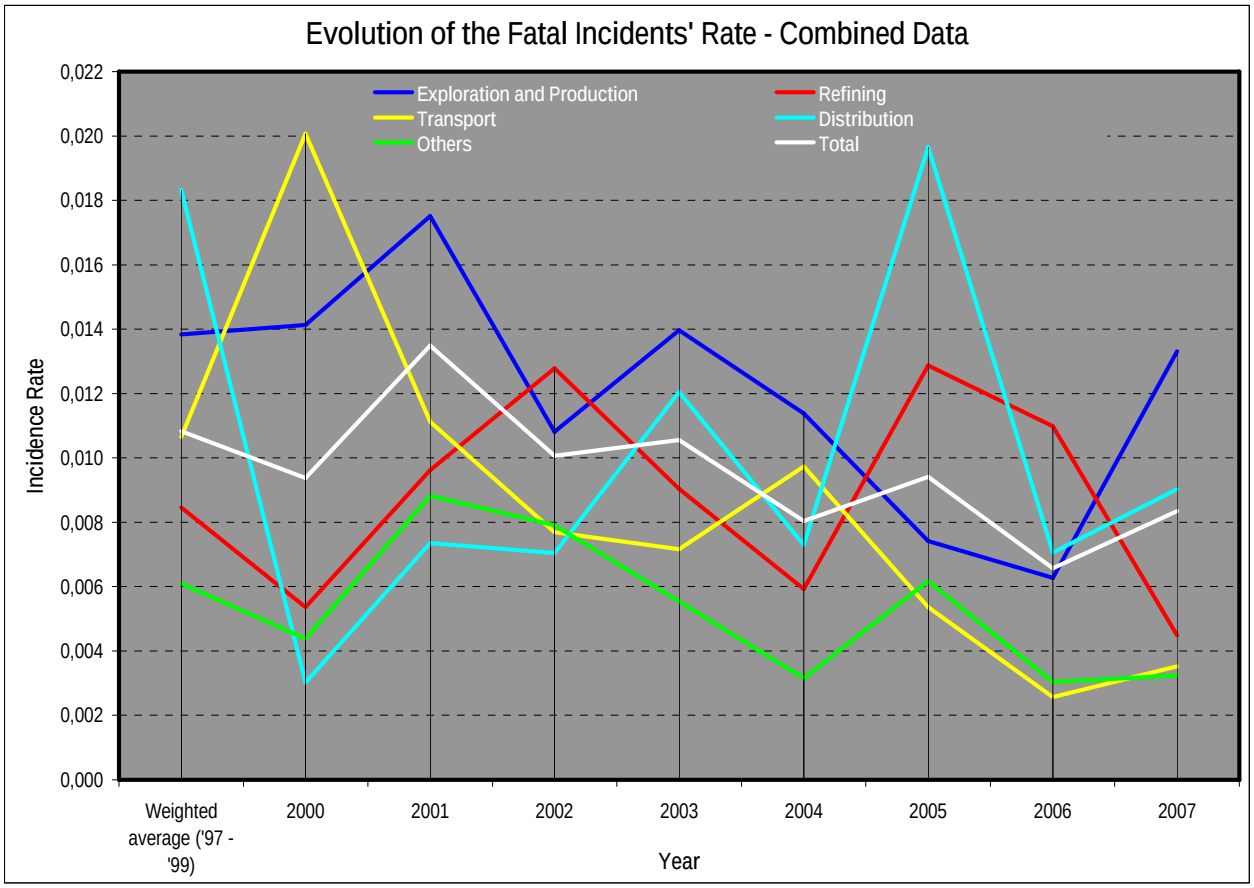

Figure 2.8.3

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 1997/2007. 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 this report
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
2007	18	18

The table below shows the OGP[4] fatal incidents' rate reported in its Safety Performance Indicators Report N°409 for the year 2007, and it is compared to the corresponding ARPEL data:

		Category		
"Exploration and Production"		Company	Contractors	Combined
Onshore and Offshore	ARPEL	0.014	0.013	0.013
	OGP	0.003	0.007	0.006

[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 100 million 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 2007

This chapter shows the individual codified results of companies for each of the rates seen so far, and for all functional units. Each letter represents a company that reported data.

In the cases that both company data and contractors' data were provided, the combined result represents the average between company and contractors data. In the cases in which only company data was provided, then, the combined result equals the result of the company.

2.9.1 Total incidents' rate by company

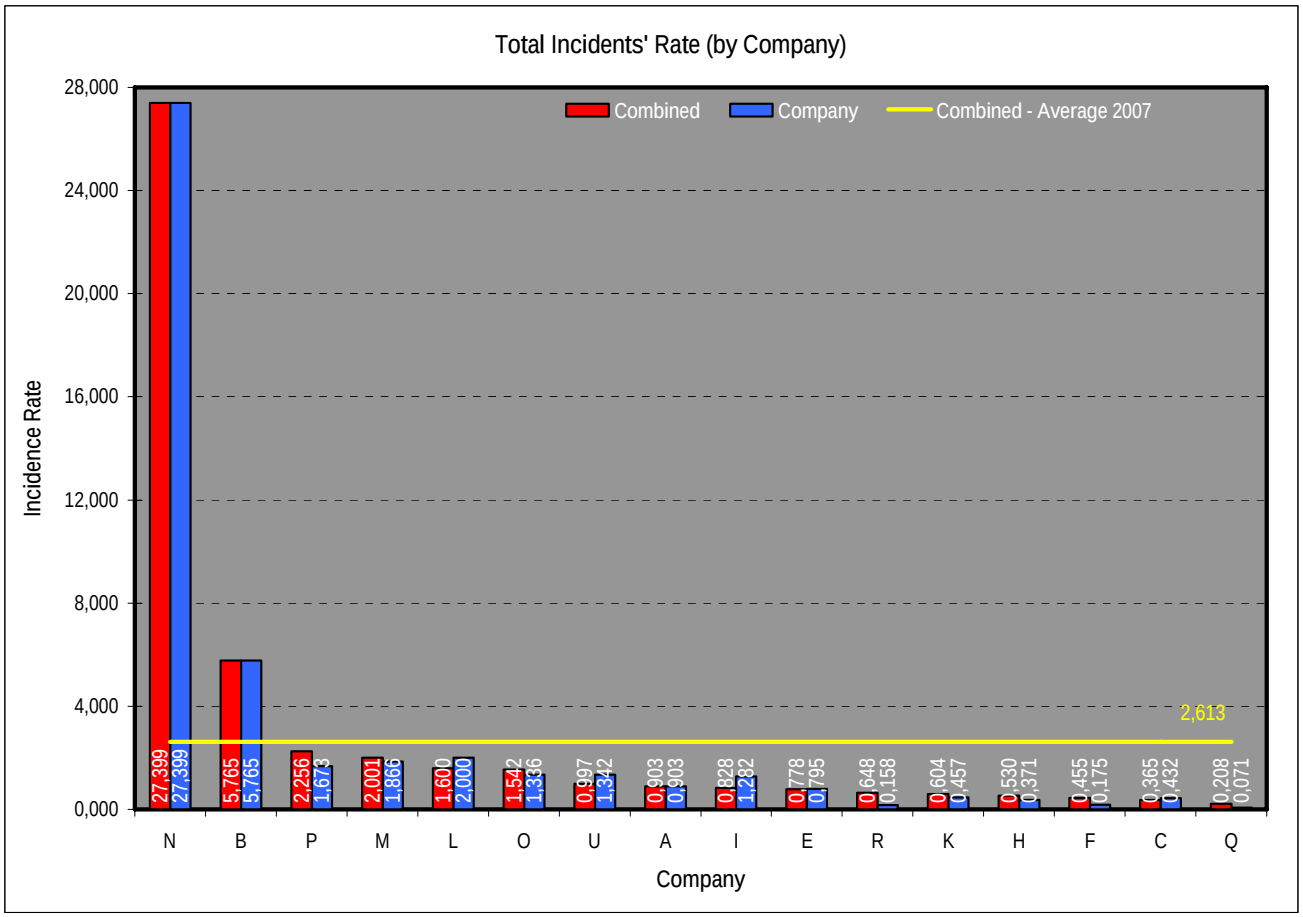

Figure 2.9.1

2.9.2 Incidents' gravity rate by company

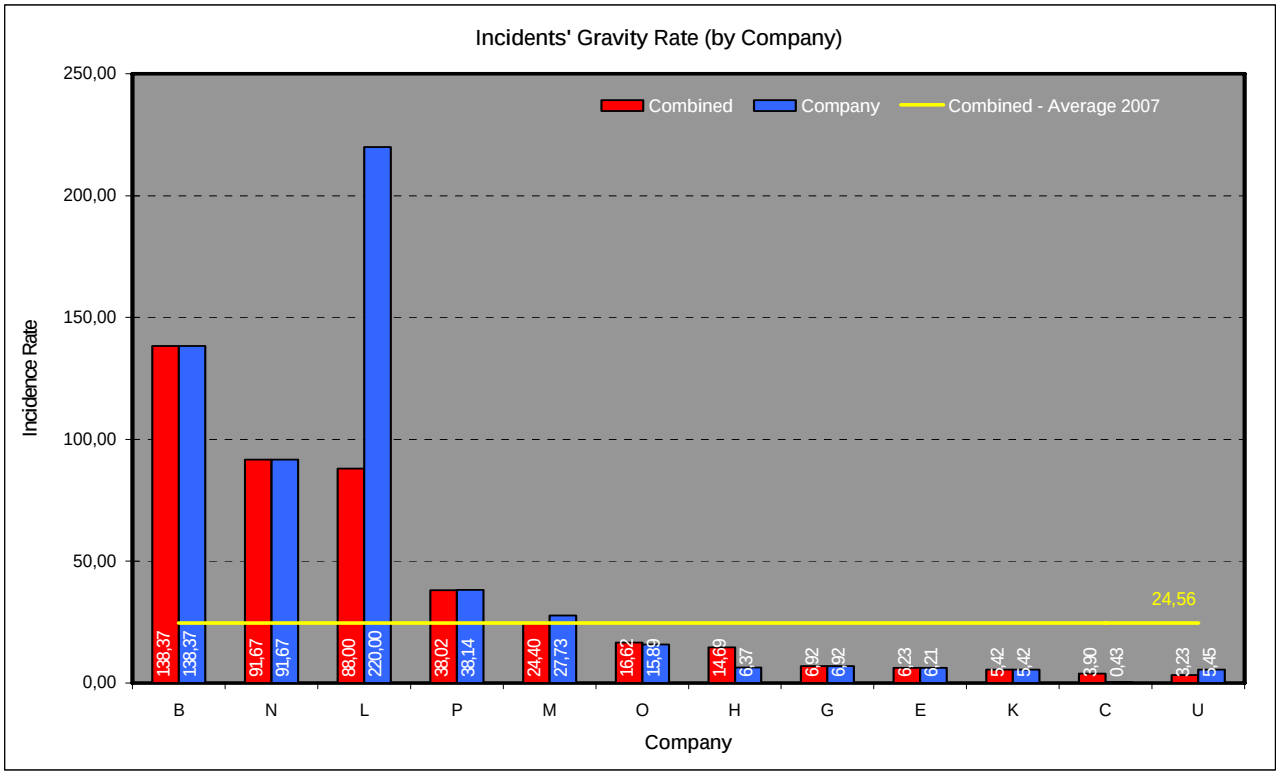

Figure 2.9.2

2.9.3 Incidents' frequency rate with lost workdays by company

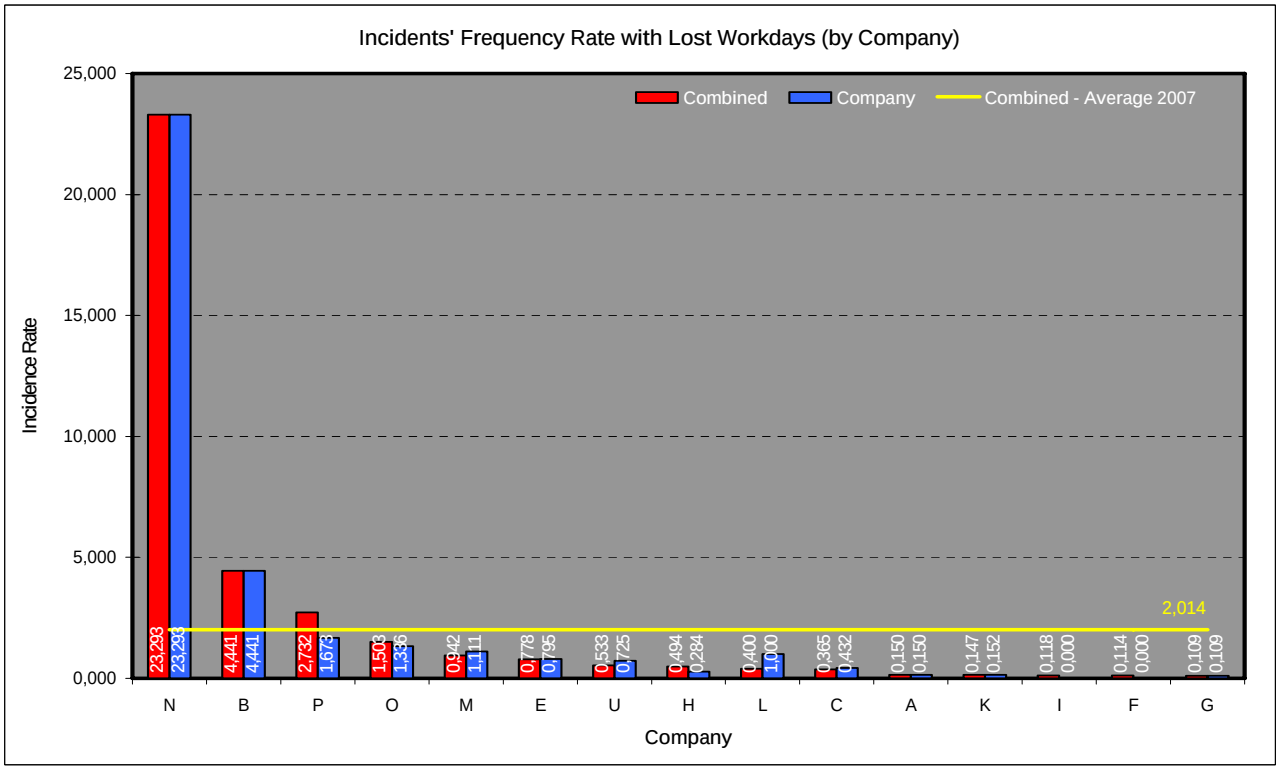

Figure 2.9.3

2.9.4 Fatal incidents' rate by company

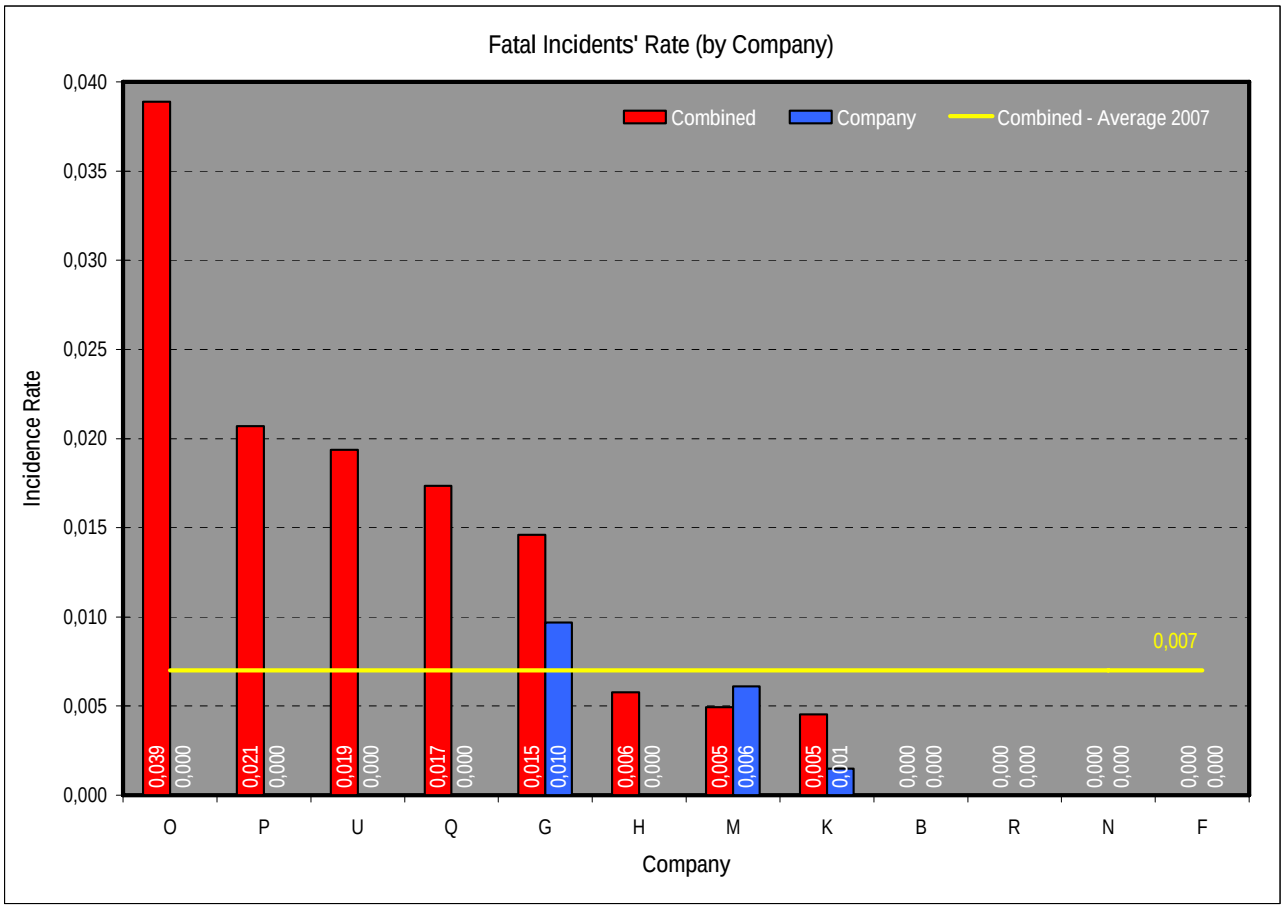

Figure 2.9.4

3.0 REACTIVE INDICATORS – offshore activities

The previous chapter presented the results of the four reactive indicators for all the activities from tose ARPEL Member Companies that reported data, including offshore activities. This chapter presents the results of the same four indicators specifically calculated to offshore activities, where the only functional unit is Exploration and Production.

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

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Nº of companies	0	2	1	0	0	4	4	4	5	5	6

The corresponding tabulated results of the graphics in this chapter are presented in APPENDIX A.

3.1 Total incidents' rate offshore

Year	1998	1999	2002	2003	2004	2005	2006	2007
Nº of companies that reported data to this rate	2	1	4	4	4	5	5	6
Total hours worked reported (company and contractors) – in thousands	42.960	33.376	100.880	101.741	70.649	101.311	149.545	95.001
Hours worked used to calculate this rate (company and contractors) – in thousands	42.960	33.376	100.880	101.725	70.649	101.311	149.545	95.001

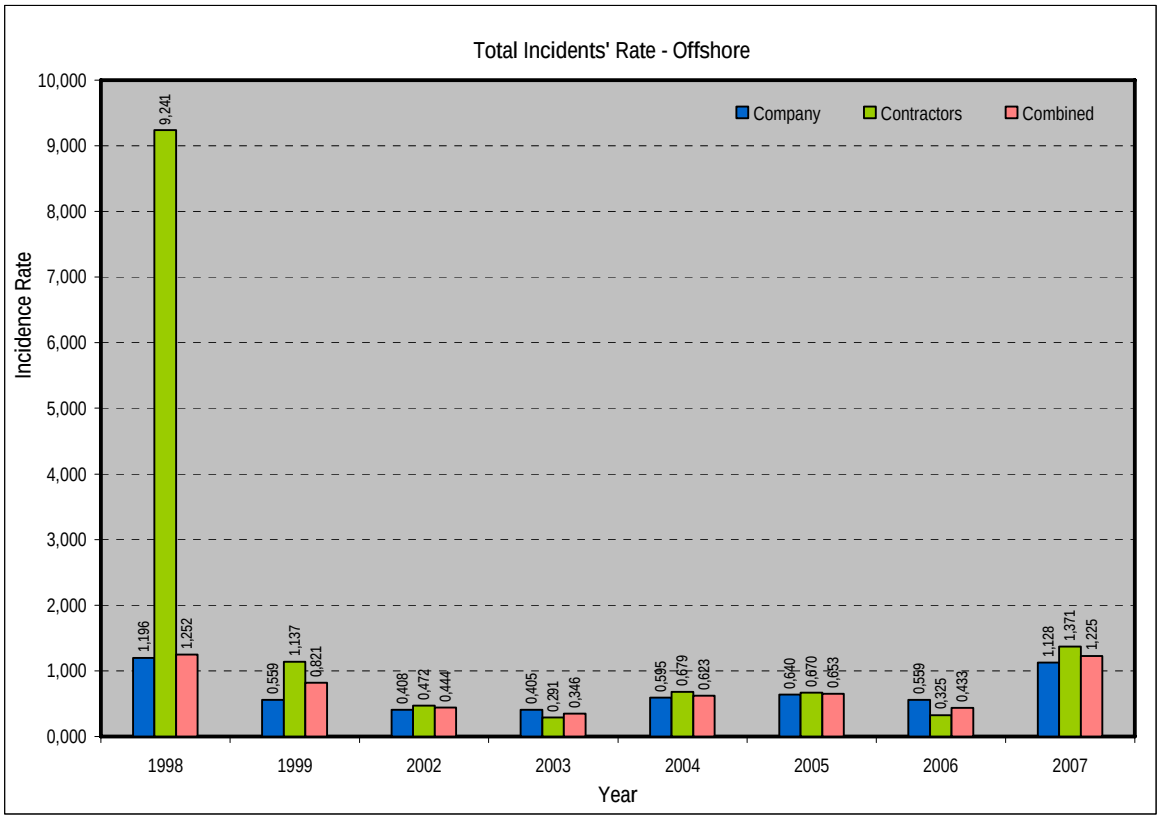

Figure 3.1

3.2 Incidents' gravity rate offshore

Year	1998	1999	2002	2003	2004	2005	2006	2007
Nº of companies that reported data to this rate	1	1	2	4	4	5	5	6
Total hours worked reported (company and contractors) – in thousands	42.960	33.376	100.880	101.741	70.649	101.311	149.545	95.001
Hours worked used to calculate this rate (company and contractors) – in thousands	40.377	33.376	3.450	50.785	49.084	76.883	149.545	76.477

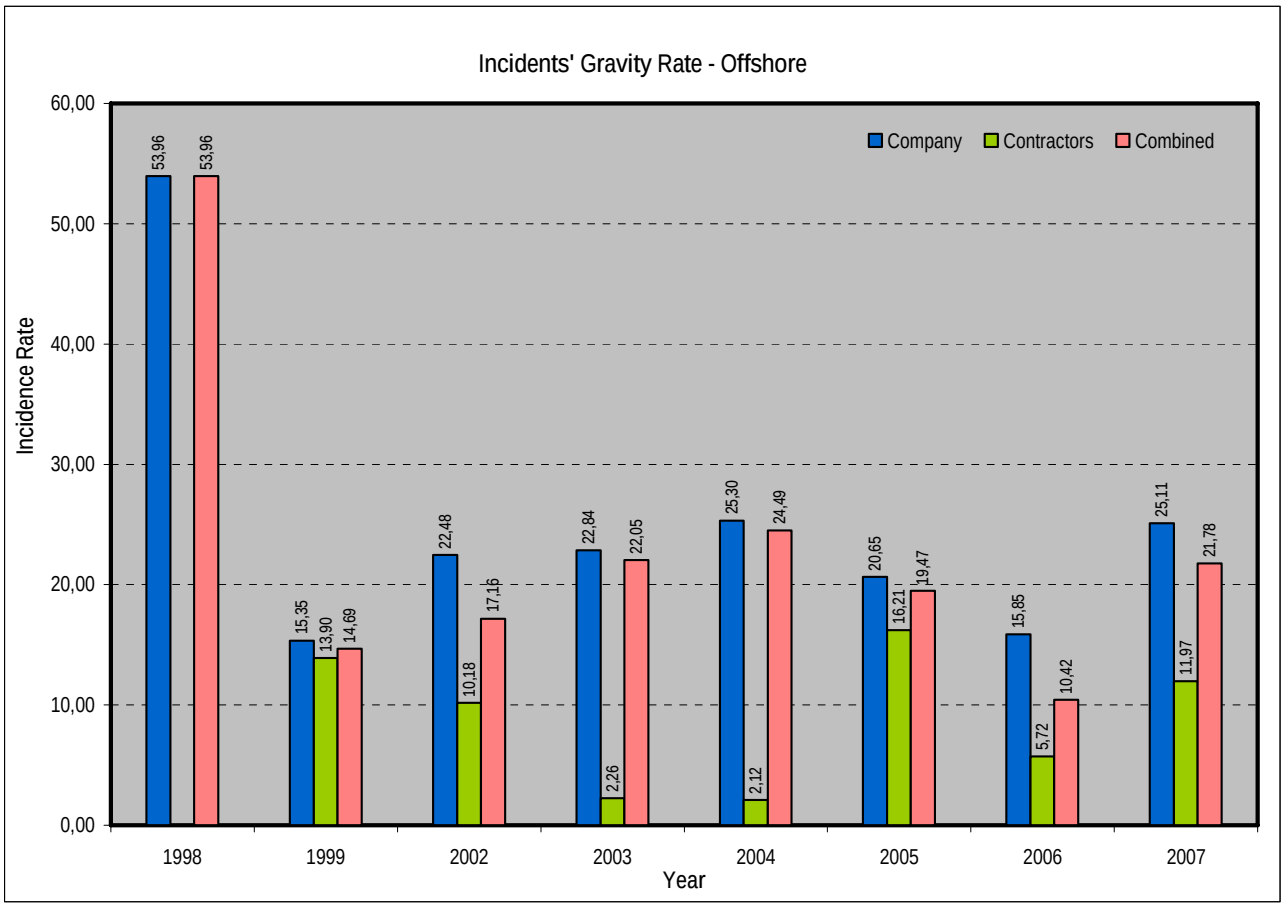

Figure 3.2

3.3 Incidents' frequency rate with lost workdays offshore

Year	1998	1999	2002	2003	2004	2005	2006	2007
Nº of companies that reported data to this rate	2	1	3	4	4	4	5	6
Total hours worked reported (company and contractors) – in thousands	42.960	33.376	100.880	101.741	70.649	101.311	149.545	95.001
Hours worked used to calculate this rate (company and contractors) – in thousands	42.960	33.376	100.877	50.785	70.649	32.549	149.545	76.477

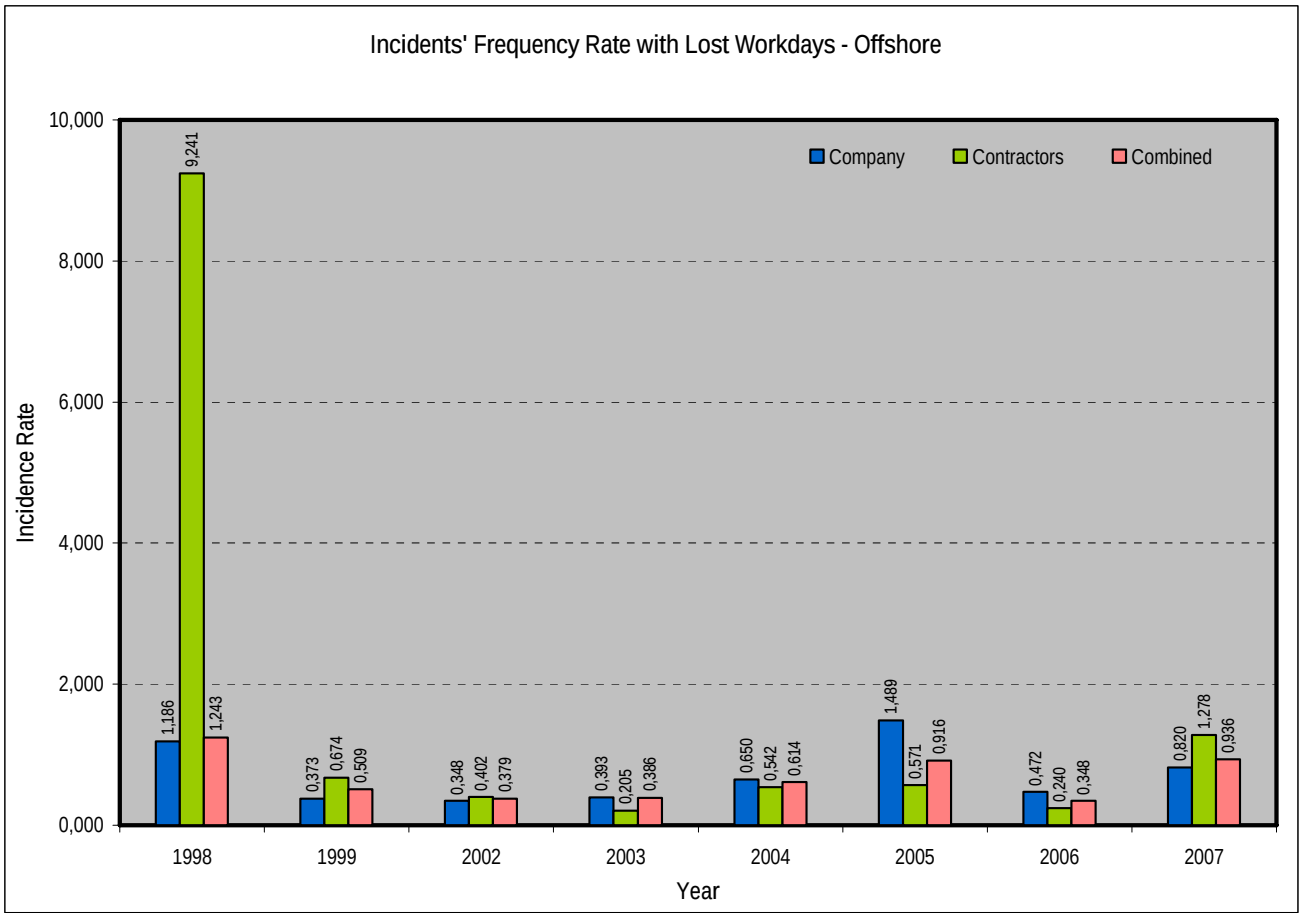

Figure 3.3

3.4 Fatal incidents' rate offshore

Year	1998	1999	2002	2003	2004	2005	2006	2007
Nº of companies that reported data to this rate	2	1	3	4	4	5	5	6
Total hours worked reported (company and contractors) – in thousands	42.960	33.376	100.880	101.741	70.649	101.311	149.545	95.001
Hours worked used to calculate this rate (company and contractors) – in thousands	42.960	15.123	100.877	101.725	70.649	101.311	149.545	95.001

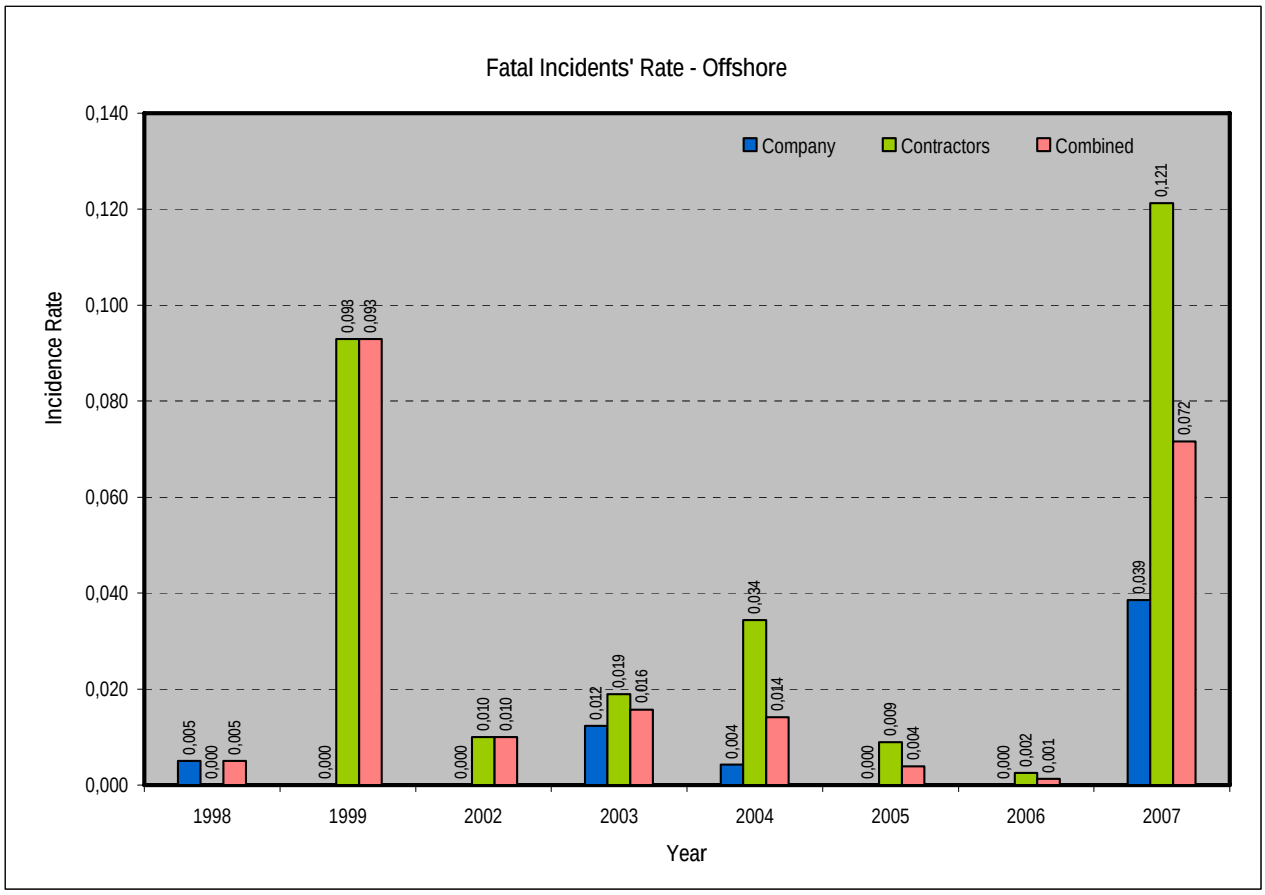

Figure 3.4

Comparing with OGP statistics reported in its Report Nº 409 about safety performance indicators, the fatal incidents' rate offshore in 2007, for the combination of workers of the company and contractors of OGP was 0.006[5], meanwhile the same rate in ARPEL was 0.072 fatalities by 200,000 hours worked.

[5] *As the original unit under which OGP reports this rate is "number of fatalities by 100 million hours worked", for comparative reasons, in this report it was converted to the units used by ARPEL (number of fatalities by 200,000 hours worked).*

4.0 FATALITY CAUSES

This chapter reports the various fatality causes in the oil industry corresponding to the companies included in this report, for the year 2007. For comparative reasons, the results corresponding to the period 2001 to 2006 are presented as well.

All fatal incidents with a reported cause were taken into account to develop the graphs shown below, either if they be of workers of the company or of contractors and both for onshore and offshore activities. The different causes are presented as a function of the percentage number of fatalities they caused.

4.1 Fatality causes – Year 2007

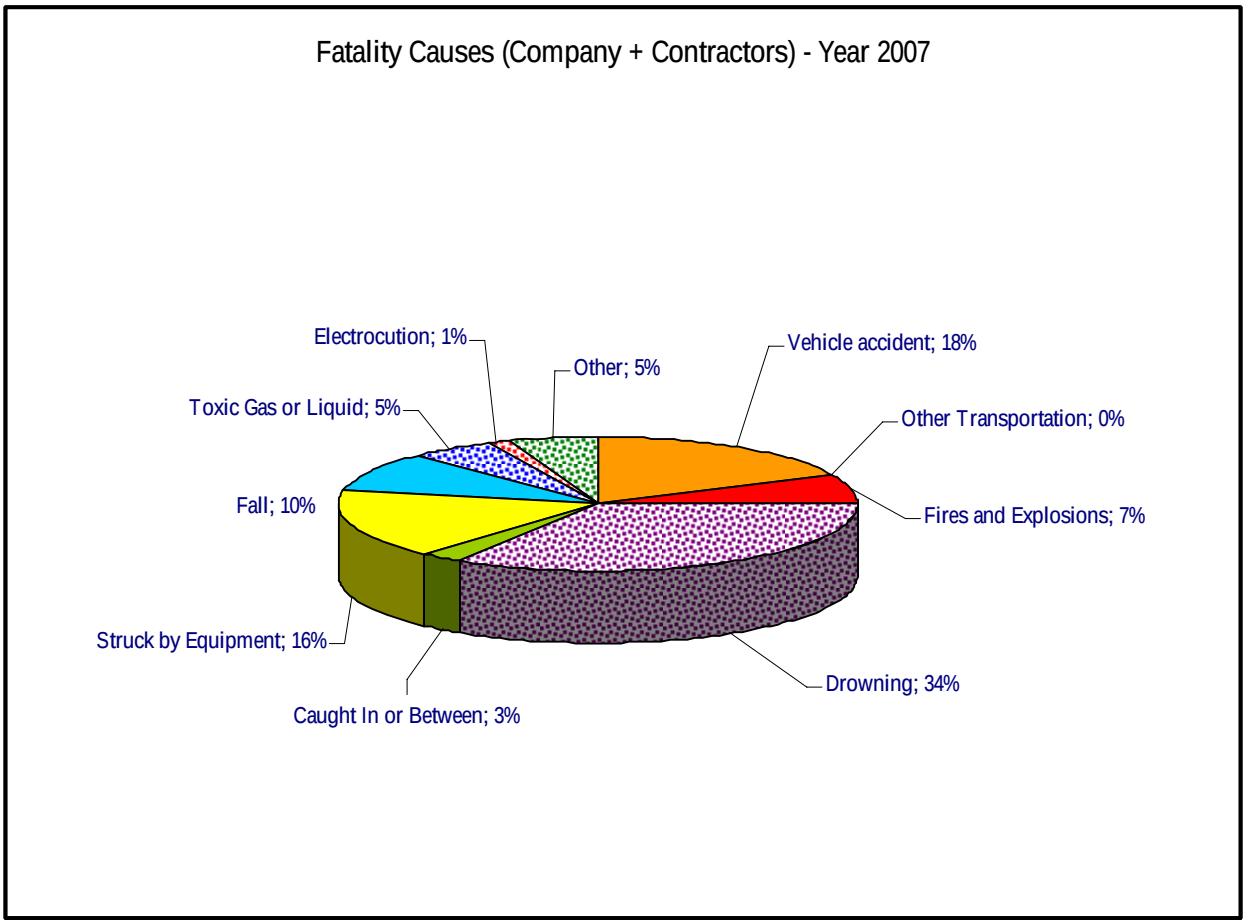

Figure 4.1

4.2 Comparative – fatality causes

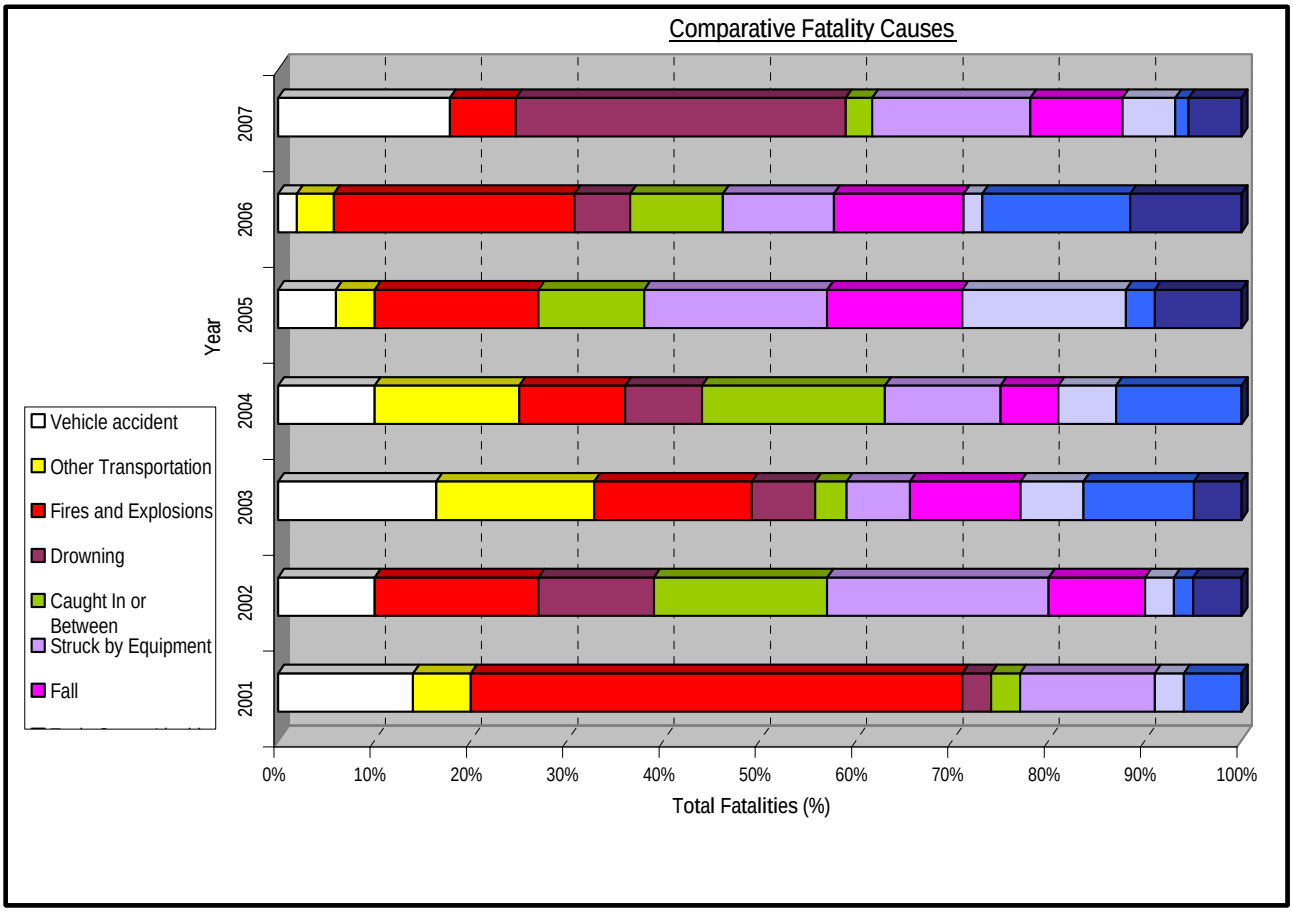

Figure 4.2

Figure 4.1 graphically represents fatality causes as a function of the percentage number of fatalities they caused in 2007.

Figure 4.2 compares the relative influence (as a percentage of the total number of fatalities considered each year) of the different fatality causes for the period 2001-2007. The table below shows the total number of fatalities with a reported cause by year.

Year	Total fatalities with reported cause
2001	35
2002	58
2003	61
2004	52
2005	70
2006	52
2007	73

Figure 4.2 shows that the three causes that, in average, represented the larger percentage of fatal incidents in the last seven years were “Fires and Explosions” in the first place, “Struck by equipment” in the second place, and “Car accidents” together with “Drowning” in the third place. Average weighted values for the period 2001-2007, as a function of the total number of fatalities considered each year

are:18.3%, 14.9% y 11.0% respectively. Tabulated results corresponding to the graphs under this chapter are included in APPENDIX A.

The table below shows the fatality causes reported by OGP[6] in its Report Nº 409 on safety performance indicators for the year 2007, and they are compared to ARPEL corresponding data.

	Function "Exploration & Production" – Combined result – onshore and offshore			
	Total fatalities	Fatality # 1	Fatality # 2	Fatality # 3
ARPEL 2007	53	Drowning (45.3%)	Struck by equipment (18.9%)	Fall (11.3%)
OGP 2007	87	Car accidents (29.9%)	Struck by (20.7%)	Drowning (16.1%)

[6] Considering that OGP only comprises "Exploration and Production", and for comparative purposes with ARPEL statistics, only this function is considered.

5.0 SAFETY PROACTIVE INDICATORS

5.1 Tasks planned observations' rate

Tasks Planned Observations' Rate (TPO) is calculated by the following formulae:

TPO rate = Number of tasks planned observations cumulative of the year / Average number of workers in the period

(See chapters 6.0 and 10.0 of the Users' Manual)

Year 2007			
Function	Number of companies that reported data for this rate	Average reported number of total workers (company)	Average number of workers used to calculate this rate (company)
E&P	6	207,543	154,112
Refining	7	215,317	187,666
Transport	4	23,742	2,912
Distribution	4	32,410	11,430
Others	5	185,409	158,768
Total	11	664,421	541,286

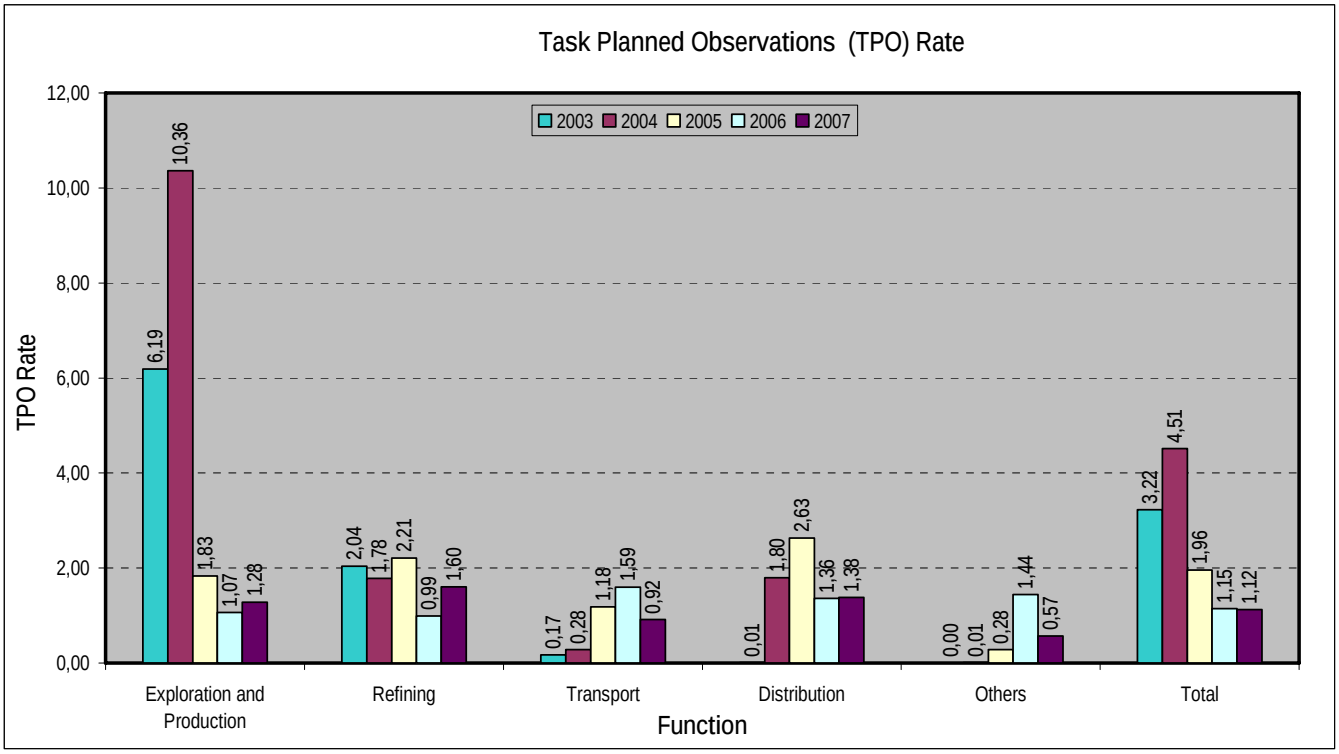

Figure 5.1

5.2 Safety training intensity rate

Safety training intensity rate (STI) is calculated with the following formulae:

STI rate = Nº of cumulative hours of safety training of the year x 100
Hours worked in the same period

(See chapters 6.0 and 10.0 of the Users' Manual)

Year 2007			
Function	Number of companies that reported data for this rate	Average reported number of total workers (company)	Average number of workers used to calculate this rate (company)
E&P	11	316,993	279,105
Refining	12	192,397	171,525
Transport	7	53,913	8,935
Distribution	6	75,522	28,864
Others	9	131,028	83,618
Total	15	769,853	632,937

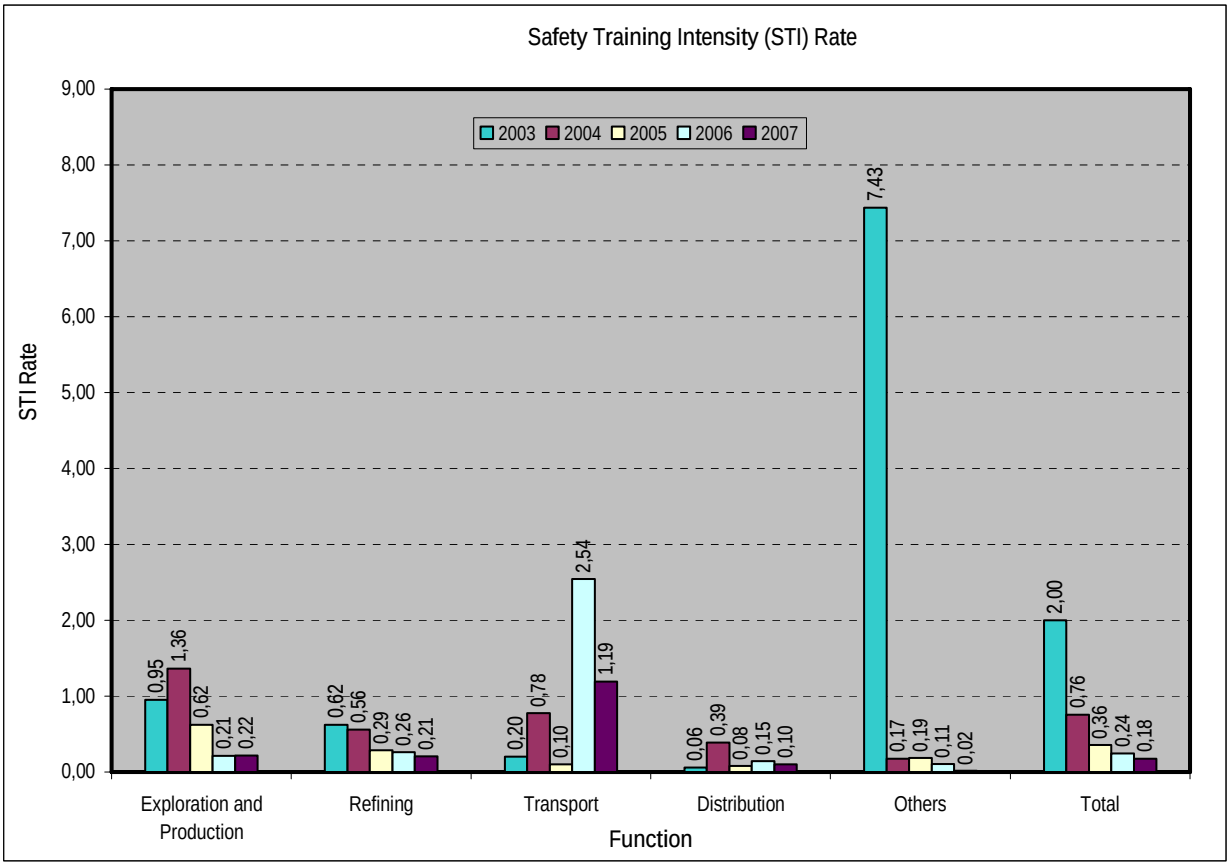

Figure 5.2

Figures 5.1 and 5.2 represent the task planned observations rate and the safety training intensity rate respectively for the years 2003 to 2007. The corresponding tabulated results are included in APPENDIX A.

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 BIBLIOGRAFY

The following material was taken as reference to prepare this report:

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3. "Summary of U.S. Occupational Injuries, Illnesses, and Fatalities in the Petroleum Industry - 1996". American Petroleum Industry. API 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 Users' Manual – Incidents' statistics in the Oil and Gas Industry in Latin America and the Caribbean – 4ª 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 – 2007 data". Report No. 409. May, 2008. 117 pages.

8.0 APPENDIX A

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

Data used to develop the graphics are presented in the tables below for each rate analyzed in chapter 2.0, for the period 1997/2007.

Table 8.1.1: Total incidents' rate by functional unit (ARPEL 1997-2007)

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	ARPEL 2007
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	0,733
	Contractors	5,705	4,878	2,173	*3,745*	0,798	1,076	0,564	0,519	0,614	0,812	0,789	0,818
	Combined	5,058	2,701	0,695	*1,579*	0,446	0,954	0,520	0,456	0,556	0,725	0,718	0,789
Refining	Company	3,962	1,001	0,459	*0,790*	2,109	0,867	0,533	0,400	0,563	0,744	0,532	0,764
	Contractors	5,514	4,408	3,039	*3,973*	0,974	1,671	0,566	0,540	0,705	1,793	0,948	1,123
	Combined	4,645	1,559	0,758	*1,313*	1,950	1,274	0,543	0,442	0,607	1,117	0,680	0,914
Transport	Company	3,480	2,184	0,432	*0,989*	0,264	0,106	0,357	0,295	0,438	1,008	1,149	0,429
	Contractors	4,211	2,296	1,479	*2,291*	0,219	1,243	0,326	0,245	0,351	1,608	1,486	0,852
	Combined	3,777	2,207	0,517	*1,223*	0,253	0,195	0,344	0,271	0,391	1,434	1,375	0,664
Distribution	Company	3,797	1,099	0,136	*0,565*	2,003	3,171	0,928	0,873	0,523	0,405	0,932	0,997
	Contractors	n/a	1,781	0,438	*0,972*	0,497	0,373	0,441	0,398	0,288	0,453	0,632	0,506
	Combined	3,797	1,200	0,175	*0,758*	1,454	2,259	0,755	0,693	0,438	0,422	0,783	0,797
Others	Company	1,303	0,926	0,094	*0,344*	0,206	1,376	0,688	0,402	0,357	0,376	0,447	0,581
	Contractors	6,459	4,271	2,063	*3,652*	0,009	0,555	0,375	0,315	0,210	0,685	0,792	0,553
	Combined	4,210	2,509	0,348	*1,221*	0,112	0,864	0,488	0,344	0,264	0,587	0,674	0,561
Total	Company	3,439	1,288	0,265	*0,677*	1,064	1,064	0,557	0,433	0,470	0,562	0,574	0,716
	Contractors	5,751	4,335	2,200	*3,595*	0,542	1,092	0,497	0,439	0,476	0,908	0,846	0,768
	Combined	4,589	2,246	0,578	*1,349*	0,899	1,083	0,526	0,437	0,474	0,762	0,734	0,748

Note: For the year 2006, one of the companies did not report "Transport" and "Distribution" separately, but included in "Exploration and Production" and "Refining". For this reason, this data for this company in 2006 had to be considered as Exploration and Production and Refining instead of considering them separately, as for all the other companies.

Table 8.1.2: Incidents' gravity rate by functional unit (ARPEL 1997-2007)

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	ARPEL 2007
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	17,05
	Contractors	96,35	35,16	47,90	*53,67*	12,21	58,80	69,87	41,28	14,60	56,02	13,85	14,12
	Combined	76,86	82,00	20,84	*40,52*	30,57	36,48	51,31	27,19	29,46	45,31	14,15	15,80
Refining	Company	29,16	47,55	24,13	*29,37*	17,46	16,30	19,94	23,63	52,44	52,60	12,82	9,47
	Contractors	63,32	190,14	65,84	*104,71*	6,33	125,29	92,68	67,85	105,02	126,19	23,77	32,17
	Combined	44,19	81,86	28,96	*42,83*	15,90	31,21	50,46	30,79	60,29	65,08	14,41	15,75
Transport	Company	139,86	70,19	13,42	*33,18*	18,53	8,81	13,29	10,89	37,07	42,82	9,38	4,30
	Contractors	175,03	328,86	240,20	*255,11*	1,63	0,00	2,04	5,23	5,90	6,79	5,54	7,80
	Combined	154,15	122,76	31,81	*64,76*	14,49	8,36	7,89	9,61	32,68	35,45	8,49	5,20
Distribution	Company	43,74	69,64	14,99	*28,27*	15,74	19,07	18,41	14,96	14,90	19,69	11,36	6,10
	Contractors	n/a	13,32	1,26	*6,05*	6,71	5,65	5,28	6,29	3,91	6,16	6,92	8,17
	Combined	43,74	61,29	13,24	*27,42*	12,45	17,17	14,02	12,35	12,42	17,59	9,49	6,66
Others	Company	12,16	16,53	1,45	*5,28*	6,15	11,95	16,01	12,47	14,02	11,69	5,63	5,82
	Contractors	143,52	176,43	132,04	*148,43*	0,00	8,06	149,93	41,28	2,76	16,68	16,90	3,83
	Combined	86,21	92,19	18,28	*42,07*	3,21	16,80	81,27	16,04	13,41	11,94	6,20	5,61
Total	Company	41,70	66,13	11,69	*25,00*	23,84	20,28	17,12	17,91	34,82	33,20	12,06	10,99
	Contractors	103,74	128,31	74,91	*97,67*	6,99	64,03	71,28	37,65	23,04	59,09	13,05	16,71
	Combined	72,56	85,68	21,92	*41,69*	18,51	30,19	45,77	23,66	31,48	40,40	12,47	12,82

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

Note 2: For the year 2006, one of the companies did not report "Transport" and "Distribution" separately, but included in "Exploration and Production" and "Refining". For this reason, this data for this company in 2006 had to be considered as Exploration and Production and Refining instead of considering them separately, as for all the other companies.

Table 8.1.3: Incidents' frequency rate with lost workdays by functional unit (ARPEL 1997-2007)

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	ARPEL 2007
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	0,489
	Contractors	1,575	1,398	0,814	*1,153*	0,731	0,556	0,427	0,549	0,379	0,442	0,458	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	0,471
Refining	Company	0,905	0,358	0,174	*0,258*	0,489	0,218	0,437	0,406	0,400	1,079	0,331	0,504
	Contractors	1,682	1,366	0,685	*1,102*	0,611	0,558	0,928	1,796	0,341	0,641	0,379	0,617
	Combined	1,247	0,601	0,233	*0,415*	0,506	0,267	0,536	0,608	0,381	0,858	0,348	0,549
Transport	Company	1,723	1,402	0,254	*0,587*	0,290	0,163	0,193	0,248	0,356	0,470	0,600	0,266
	Contractors	2,218	0,804	n/a	*1,355*	0,219	0,000	0,144	0,296	0,271	0,310	0,202	0,271
	Combined	1,924	1,281	0,254	*0,653*	0,273	0,141	0,184	0,255	0,310	0,437	0,339	0,269
Distribution	Company	1,208	0,547	0,116	*0,274*	1,528	2,358	0,818	0,823	0,401	0,484	0,624	0,830
	Contractors	n/a	0,925	0,219	*0,500*	0,314	0,268	0,299	0,320	0,201	0,189	0,263	0,362
	Combined	1,208	0,603	0,129	*0,343*	1,086	1,966	0,637	0,658	0,328	0,327	0,445	0,649
Others	Company	0,416	0,419	0,045	*0,146*	0,345	0,551	0,530	0,351	0,300	0,330	0,203	0,420
	Contractors	1,742	1,465	0,558	*1,085*	0,486	0,704	0,324	1,184	0,210	0,170	0,181	0,154
	Combined	1,163	0,914	0,111	*0,399*	0,412	0,629	0,452	0,414	0,242	0,248	0,189	0,239
Total	Company	0,874	0,643	0,124	*0,280*	0,534	0,595	0,455	0,411	0,368	0,637	0,463	0,496
	Contractors	1,671	1,364	0,719	*1,116*	0,563	0,557	0,452	0,678	0,311	0,390	0,363	0,367
	Combined	1,270	0,869	0,220	*0,472*	0,543	0,581	0,454	0,482	0,336	0,480	0,405	0,424

Note: For the year 2006, one of the companies did not report "Transport" and "Distribution" separately, but included in "Exploration and Production" and "Refining". For this reason, this data for this company in 2006 had to be considered as Exploration and Production and Refining instead of considering them separately, as for all the other companies.

Table 8.1.4: Fatal incidents' rate by functional unit (ARPEL 1997-2007)

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	ARPEL 2007
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	0,014
	Contractors	0,027	0,021	0,051	*0,036*	0,013	0,018	0,014	0,019	0,014	0,008	0,009	0,013
	Combined	0,020	0,017	0,012	*0,014*	0,014	0,018	0,011	0,014	0,011	0,007	0,006	0,013
Refining	Company	0,000	0,009	0,005	*0,006*	0,003	0,003	0,006	0,005	0,005	0,012	0,006	0,002
	Contractors	0,006	0,046	0,013	*0,022*	0,019	0,030	0,030	0,018	0,008	0,015	0,021	0,008
	Combined	0,003	0,018	0,006	*0,008*	0,005	0,010	0,013	0,009	0,006	0,013	0,011	0,004
Transport	Company	0,017	0,017	0,000	*0,005*	0,005	0,000	0,003	0,004	0,008	0,000	0,008	0,000
	Contractors	0,025	0,050	0,058	*0,049*	0,067	0,079	0,013	0,011	0,011	0,008	0,000	0,006
	Combined	0,020	0,024	0,005	*0,011*	0,020	0,011	0,008	0,007	0,010	0,005	0,003	0,004
Distribution	Company	0,000	0,024	0,000	*0,005*	0,005	0,005	0,005	0,005	0,002	0,003	0,000	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	0,022
	Combined	0,000	0,048	0,010	*0,018*	0,003	0,007	0,007	0,012	0,007	0,020	0,007	0,009
Others	Company	0,000	0,002	0,000	*0,001*	0,000	0,007	0,003	0,000	0,002	0,000	0,002	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	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	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	0,006
	Contractors	0,021	0,035	0,040	*0,035*	0,015	0,019	0,015	0,016	0,011	0,012	0,009	0,010
	Combined	0,013	0,019	0,008	*0,011*	0,009	0,013	0,010	0,011	0,008	0,009	0,007	0,008

Note: For the year 2006, one of the companies did not report "Transport" and "Distribution" separately, but included in "Exploration and Production" and "Refining". For this reason, this data for this company in 2006 had to be considered as Exploration and Production and Refining instead of considering them separately, as for all the other companies.

8.2 Tabulated results: Offshore activities for companies, contractors, and combined

Data used to create the graphs for each rate analyzed in Chapter 3.0 is presented in the tables below, for the period 1997/2007.

Table 8.2.1: Incidents' rates by functional unit – offshore activities (ARPEL 1997-2007)

Function	Data Category	1 Total Incidents' Rate								2 Incidents' Gravity Rate							
		ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006	ARPEL 2007	ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006	ARPEL 2007
E&P	Company	1,196	0,559	0,408	0,405	0,595	0,640	0,559	1,128	53,96	15,35	22,48	22,84	25,30	20,65	15,85	25,11
	Contractors	9,241	1,137	0,472	0,291	0,679	0,670	0,325	1,371	n/a	13,90	10,18	2,26	2,12	16,21	5,72	11,97
	Combined	1,252	0,821	0,444	0,346	0,623	0,433	0,653	1,225	53,96	14,69	17,16	22,05	24,49	19,47	10,42	21,78
Total	Company	1,196	0,559	0,408	0,405	0,595	0,640	0,559	1,128	53,96	15,35	22,48	22,84	25,30	20,65	15,85	25,11
	Contractors	9,241	1,137	0,472	0,291	0,679	0,670	0,325	1,371	n/a	13,90	10,18	2,26	2,12	16,21	5,72	11,97
	Combined	1,252	0,821	0,444	0,346	0,623	0,433	0,653	1,225	53,96	14,69	17,16	22,05	24,49	19,47	10,42	21,78

Function	Data Category	3 Incidents' Frequency Rate with Lost Workdays								4 Fatal Incidents' Rate							
		ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006	ARPEL 2007	ARPEL 1998	ARPEL 1999	ARPEL 2002	ARPEL 2003	ARPEL 2004	ARPEL 2005	ARPEL 2006	ARPEL 2007
E&P	Company	1,186	0,373	0,348	0,393	0,650	1,489	0,472	0,820	0,005	n/a	n/a	0,012	0,004	0,000	0,000	0,039
	Contractors	9,241	0,674	0,402	0,205	0,542	0,571	0,240	1,278	0,000	0,093	0,010	0,019	0,034	0,009	0,002	0,121
	Combined	1,243	0,509	0,379	0,386	0,614	0,916	0,348	0,936	0,005	0,093	0,010	0,016	0,014	0,004	0,001	0,072
Total	Company	1,186	0,373	0,348	0,393	0,650	1,489	0,472	0,820	0,005	n/a	n/a	0,012	0,004	0,000	0,000	0,039
	Contractors	9,241	0,674	0,402	0,205	0,542	0,571	0,240	1,278	0,000	0,093	0,010	0,019	0,034	0,009	0,002	0,121
	Combined	1,243	0,509	0,379	0,386	0,614	0,916	0,348	0,936	0,005	0,093	0,010	0,016	0,014	0,004	0,001	0,072

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

8.3 Tabulated results – Safety proactive indicators

Data used to develop the graphs for each indicator analyzed in Chapter 5.0 are presented in the tables below for the period 2003/2007.

Table 8.3.1: Tasks planned observations rate by functional unit – company data (ARPEL, 2003/2007)

Functional Unit	TPO rate 2003	TPO rate 2004	TPO rate 2005	TPO rate 2006	TPO rate 2007
Exploration and Production	6,19	10,36	1,83	1,07	1,28
Refining	2,04	1,78	2,21	0,99	1,60
Transport	0,17	0,28	1,18	1,59	0,92
Distribution	0,01	1,80	2,63	1,36	1,38
Others	0,00	0,01	0,28	1,44	0,57
Total	3,22	4,51	1,96	1,15	1,12

Note: For the year 2006, one of the companies did not report "Transport" and "Distribution" separately, but included in "Exploration and Production" and "Refining". For this reason, this data for this company in 2006 had to be considered as Exploration and Production and Refining instead of considering them separately, as for all the other companies.

Table 8.3.2: Safety training intensity rate by functional unit – company data (ARPEL, 2003/2007)

Functional Unit	STI rate 2003	STI rate 2004	STI rate 2005	STI rate 2006	STI rate 2007
Exploration and Production	0,95	1,36	0,62	0,21	0,22
Refining	0,62	0,56	0,29	0,26	0,21
Transport	0,20	0,78	0,10	2,54	1,19
Distribution	0,06	0,39	0,08	0,15	0,10
Others	7,43	0,17	0,19	0,11	0,02
Total	2,00	0,76	0,36	0,24	0,18

Note: For the year 2006, one of the companies did not report "Transport" and "Distribution" separately, but included in "Exploration and Production" and "Refining". For this reason, this data for this company in 2006 had to be considered as Exploration and Production and Refining instead of considering them separately, as for all the other companies.

8.4 Tabulated results – fatality causes – ARPEL 2003-2007

Table 8.4.1: Fatality causes – totals for ARPEL Member Companies and their contractors – term 2003/2007

Fatality Causes	Percentage of fatalities						
	2001	2002	2003	2004	2005	2006	2007
Vehicle accident	14%	10%	16%	10%	6%	2%	18%
Other Transportation	6%	0%	16%	15%	4%	4%	0%
Fires and Explosions	51%	17%	16%	11%	17%	25%	7%
Drowning	3%	12%	7%	8%	0%	6%	34%
Caught In or Between	3%	18%	3%	19%	11%	10%	3%
Struck by Equipment	14%	23%	7%	12%	19%	12%	16%
Fall	0%	10%	11%	6%	14%	13%	10%
Toxic Gas or Liquid	3%	3%	7%	6%	17%	2%	5%
Electrocution	6%	2%	11%	13%	3%	15%	1%
Other	0%	5%	5%	0%	9%	12%	5%
TOTAL	100%	100%	100%	100%	100%	100%	100%

9.0 APPENDIX B

9.1 ARPEL Member Companies data: totals for companies – year 2007

This table gathers all data of ARPEL Member Companies that reported for the year 2007. Incidence rates are calculated.

Table 9.1: ARPEL Member Companies data - totals for companies (including offshore activities); data for the year 2007

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:							
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	Number of days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	186.588	264.552	908	42	19	969	4	647	285	22.555	0,733	17,05	0,489	0,015
Refining	2	211.005	182.097	543	151	2	696	151	458	1.071	8.617	0,764	9,47	0,504	0,002
Transport	3	21.992	50.407	108	0	0	108	0	67	21	1.083	0,429	4,30	0,266	0,000
Distribution	4	27.528	65.795	106	222	0	328	223	273	1.652	2.006	0,997	6,10	0,830	0,000
Others	5	183.700	128.489	188	184	1	373	183	269	1.834	3.728	0,582	5,82	0,420	0,002
Total		630.813	691.340	1.853	599	22	2.474	561	1.714	4.863	37.989	0,716	10,99	0,496	0,006

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 of ARPEL Member Companies' contractors: totals for contractors – year 2007

This table gathers all data of ARPEL Member Companies' contractors that reported data for the year 2007. Incidence rates are calculated.

Table 9.2: Data of ARPEL Member Companies' contractors –totals for contractors (including offshore activities); data for the year 2007

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:							
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	Number of days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	228.273	517.135	2.082	1	33	2.116	34	856	747	13.995	0,818	14,12	0,458	0,013
Refining	2	59.966	130.053	725	0	5	730	0	371	245	11.183	1,123	32,17	0,617	0,008
Transport	3	28.961	63.127	267	0	2	269	0	83	2	683	0,852	7,80	0,271	0,006
Distribution	4	22.281	45.057	109	0	5	114	6	75	4	989	0,506	8,17	0,362	0,022
Others	5	135.362	303.621	833	1	6	840	0	209	9	294	0,553	3,83	0,154	0,004
Total		474.842	1.058.992	4.016	2	51	4.069	40	1.594	1.007	27.144	0,768	16,71	0,367	0,010

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 of ARPEL Member Companies: offshore activities – year 2007

This table gathers all offshore activities' data of ARPEL Member Companies that reported data for the year 2007. Incidence rates are calculated.

Table 9.3: ARPEL Member Companies' data – offshore activities; data for the year 2007

1		2	3	4				5				6			
				Casos registrables				Extent and outcome of injuries and illnesses				Incidence Rates			
				a	b	c	d	e	f	g	h	i	j	k	l
								Cases of:							
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	Number of days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	135.362	57.077	311	0	11	322	1	234	93	7.166	1,128	25,11	0,820	0,039
Total		135.362	57.077	311	0	11	322	1	234	93	7.166	1,128	25,11	0,820	0,039

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 of ARPEL Member Companies' contractors: offshore activities – year 2007

This table gathers all offshore activities' data of ARPEL Member Companies' contractors that reported for the year 2007. Incidence rates are calculated.

Table 9.4: Data of ARPEL Member Companies' contractors –offshore activities; data for the year 2007

1		2	3	4				5				6			
				Casos registrables				Extent and outcome of injuries and illnesses				Incidence Rates			
				a	b	c	d	e	f	g	h	i	j	k	l
								Cases of:							
Function	Key[1]	Average number of employees	Hours worked (in thousands)	Injuries	Illnesses	Fatalities	Total	Restricted workdays	Lost workdays	Medical Treatment	Number of days away from work	Total	Gravity	Frequency with lost workdays	Fatalities
E&P	1	34.688	37.924	237	0	23	260	2	124	61	1.161	1,371	11,97	1,278	0,121
Total		34.688	37.924	237	0	23	260	2	124	61	1.161	1,371	11,97	1,278	0,121

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)