

Safety benchmarking in the oil and gas industry in Latin America and the Caribbean

2012 Statistics for ARPEL Member Companies



REGIONAL ASSOCIATION OF OIL, GAS AND BIOFUELS SECTOR COMPANIES IN LATIN AMERICA AND THE CARIBBEAN



ARPEL REPORT

Safety benchmarking in the oil and gas industry in Latin America and the Caribbean

2012 Statistics for ARPEL Member Companies

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1. EXECUTIVE SUMMARY

This report is a compilation of safety statistics of ARPEL Member Companies. It analyzes four reactive indicators (total incidents, gravity, frequency of incidents with lost work days and fatalities) and two proactive indicators (safety training intensity and task planned observations), broken down by business line (E&P, refining, pipelines, distribution and others) and by category (company and contractors), and also including historical data since 2000.

Scope:

Nineteen companies shared their data for 2012, with a total coverage of 907,451 employees and 2,105 million hours worked.

Reactive indicators:

The total incidents' rate recorded a decrease for the second consecutive year, falling from 3.61 incidents per million hours worked in 2010, to 3.29 in 2011 and to 2.15 in 2012; the frequency rate of incidents with lost workdays is ranked in the lowest value in the last ten years (0.91 incidents per million hours worked) and, finally, the rate of severity showed a slight decline (from 66.9 in 2011 to 64.4 in 2012).

Proactive indicators:

Both proactive indicators continue to show a growing trend. For the year 2012, 4.59 task planned

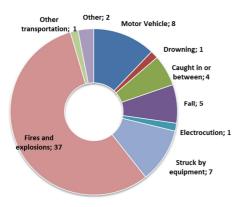
Indicator	2011	2012	var	
Total incidents rate	3.29	2.15	-35%	
Gravity rate	66.93	64.43	 -4%	
Incidents w/LWD rate	2.22	0.91	-59%	
Fatalities rate	0.028	0.031	13%	

observations per employee were registered and the safety training hours represented 0.42% of the total man hours worked.

Fatalities:

here were 66 fatalities during 2012 representing a rate of 0.031 fatalities per million man-hours worked. The value is somewhat higher than that recorded in 2011 (0.028) but with the particularity that the number of incidents recorded was lower, thus increasing the number of fatalities per incident.

The main cause of fatalities in the year was "fires and explosions" with 56% of the total. Fires and explosions is also the main historical cause of mortality since ARPEL began to keep records in 2001 (136 cases; 20% of the total).



Incidents feedback:

In order to prevent and reduce fatal and high potential incidents that happen every year in the industry, ARPEL has opened a space for the exchange of information, only for members in its web page (www.arpel.org), in which you can see and share in detail the conditions, causes, failures, and lessons learned from safety incidents that have been recorded in the industry from 2010 to date.



2. INDICATORS (methodological note)

This report collects four reactive indicators and two proactive indicators, which are detailed below:

2.1. Reactive

1. Total incidents' rate = $\frac{\text{Total recordable cases (injuries+illnesses+fatalities)}}{\text{Hours worked (in millions)}}$
2. Incidents gravity rate = $\frac{Number of days away from work}{Hours worked (in millions)}$
3. Incidents' frequency rate with lost workdays = $\frac{cases with lost workdays}{Hours worked (in millions)}$
4. Fatalities'rate = Number of fatalities Hours worked (in millions)

2.2. Proactive

5. TPO	Indicator = $\frac{Number of Task Planned Observations (TPO)recorded}{Average number of workers}$
6. Safe	ety Training Intensity = $\frac{Total \ number \ of \ safety \ trining \ hours}{Hours \ worked \ (in \ millions)} * 100$

For more information on the indicators or definitions, please refer to the User Manual (6th edition 2012) or the glossary provided at the end of this Report.

Not all companies report data for the calculation of all the rates, either because they do not have the information in the required breakdown, or simply because the requested information does not apply to the company in question. The indicators are calculated with the data reported for each particular indicator, so that the denominators vary depending on the number of companies that have reported their data correctly for each particular indicator.

Overall data of the companies is shown, broken down by category (company/contractors), in addition to a breakdown for onshore and offshore E&P. Proactive indicators are calculated only for company employees.



3. SCOPE OF THE INFORMATION

Nineteen ARPEL member companies shared their 2012 safety data for the development of this report, as shown in the following table.

Companies										
ANCAP	EQUIÓN	PETROAMAZONAS EP	RECOPE							
CHEVRON	HOCOL	PETROBRAS	REFIDOMSA							
ECOPETROL	OCENSA	PETROPERÚ	REPSOL							
ENAP	PCJ	PETROTRIN	STAATSOLIE							
EP PETROECUADOR	PEMEX	PLUSPETROL								

The following table shows the total number of employees and man-hours reported.

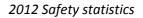
As can be seen, the level of 900,000 employees and 2,000 million hours worked was again surpassed, thus achieving a high representativeness of the oil and gas industry in Latin America and the Caribbean.

		Company		Contra	ctors	Totals		
Function	# Companies	Employees M/H		Employees	M/H	Employees	M/H	
E&P	13	101,840	217,667	261,263	697,413	363,103	915,080	
Refining	13	70,971	168,234	43,750	106,496	114,721	274,730	
Pipelines	8	19,749	42,238	33,936	85,163	53,685	127,401	
Transp maritime	3	11,192	20,406	456	1,272	11,648	21,678	
Distribution	8 19,378		42,527	15,692	30,438	35,070	72,965	
Other	10	64,460	141,217	264,764	552,159	329,224	693,376	
Total	19	287,590	632,289	619,861	1,472,941	907,451	2,105,230	

M/H: Man Hours worked

Chapter 4 includes an analysis of the reactive indicators (total incidents, gravity, incidents with lost work days and fatalities) and the proactive indicators (task planned observations and safety training intensity) in a comprehensive manner, with a section for each function of the industry under consideration (E&P, refining, pipelines, distribution and others). The data on maritime transportation are considered only in the total as there are not enough companies for an exclusive benchmarking of this function.

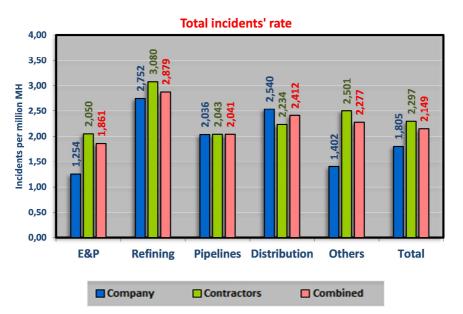
Chapter 5 includes a more in depth analysis of the causes of fatalities; chapter 6 provides a glossary; chapter 7 contains the calculation tables of the indicators with the values for 2012 in addition to the historical series of indicators; and chapter 8 contains some references and bibliography used in the development of the Manual and this report.

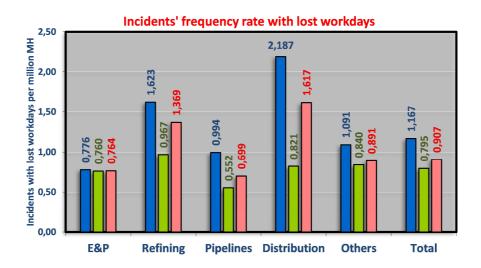




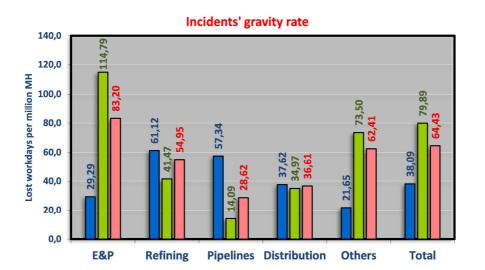
4.1. Overall Results

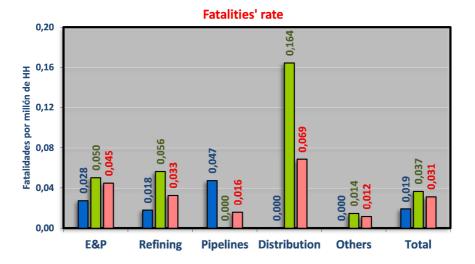
Below are the 2012 overall results for the four reactive indicators by function and then by company. Refining was the activity with more incidents per million hours worked (2.88), E&P the one with the highest number of days lost -gravity - (83.20), and Distribution the one with the highest frequency of incidents with lost days (1.62) and fatalities (0.069).



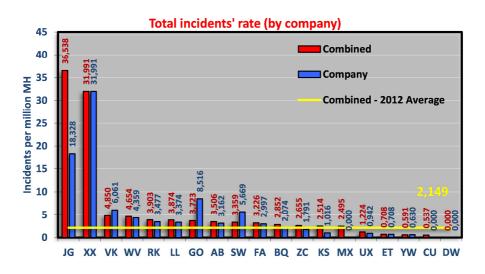




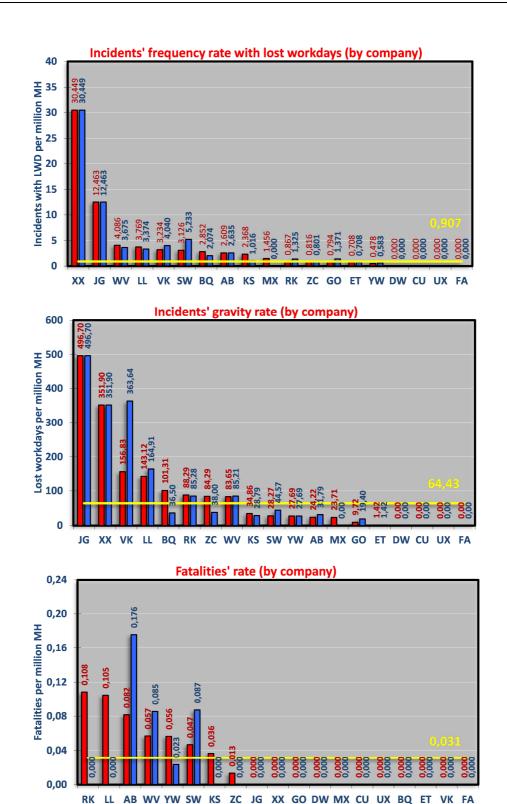




All the indicators show a great heterogeneity in safety performance, with maximum values well above regional averages.



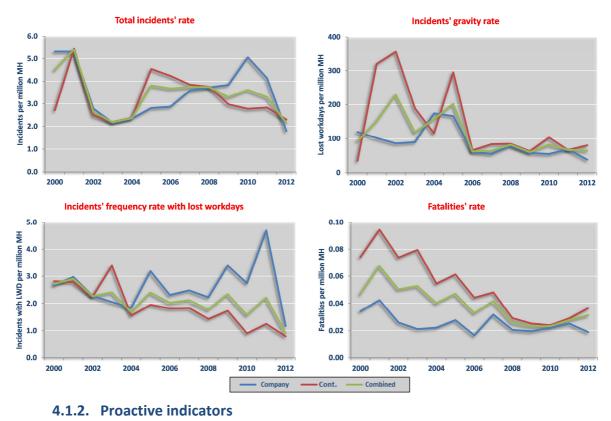




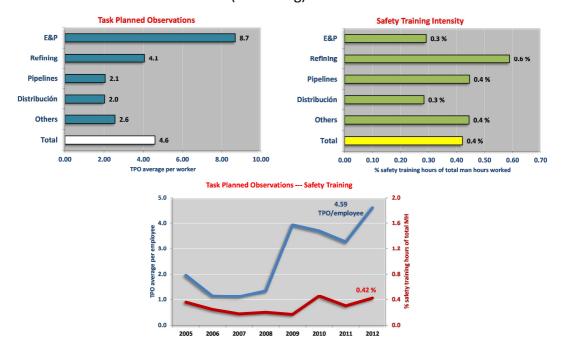


4.1.1. Evolution of reactive indicators

The following four graphs show the evolution of reactive indicators from 2000. There has been an improvement in the performance in all of them when the values for 2012 are compared to the values at the beginning of the period under study.



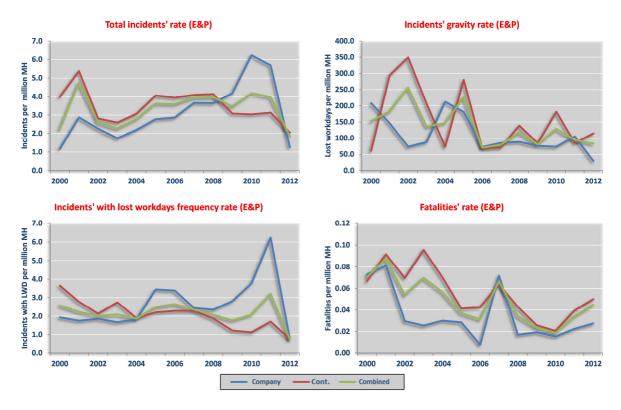
Finally, the proactive indicators are shown by function and their global evolution since 2003. These indicators also show a desirable (increasing) trend.





4.2. Exploration & Production

Below is the evolution of the reactive and proactive indicators for Exploration and Production. The data include offshore operations.



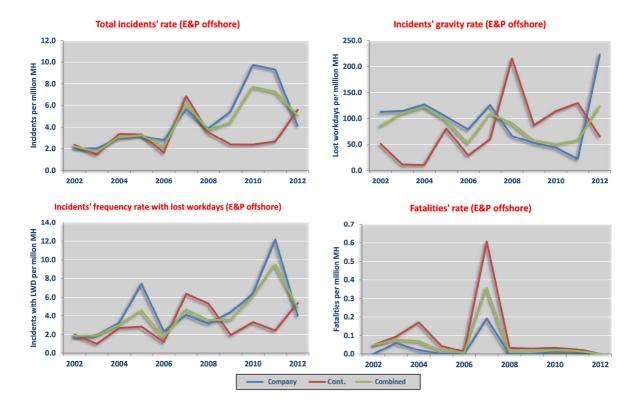
4.2.1. Reactive indicators

4.2.2. Proactive indicators



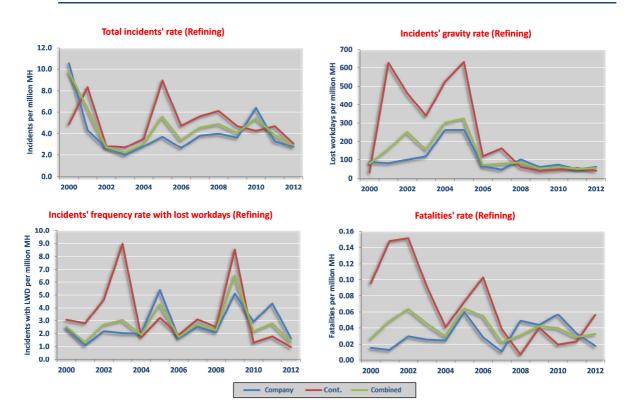


4.2.3. Reactive indicators for E&P offshore





Below is the evolution of the reactive and proactive indicators for Refining.



4.3.1. Reactive indicators

4.3.2. Proactive indicators

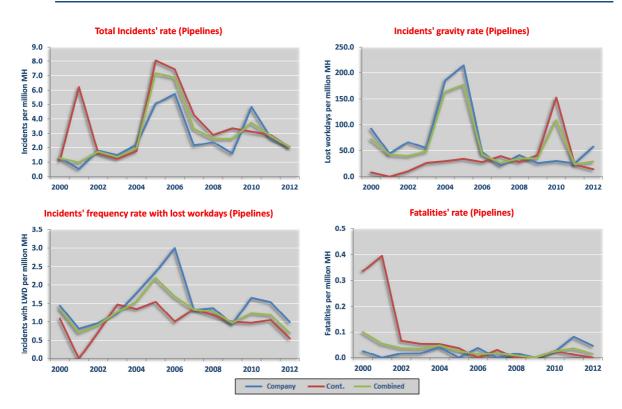




4.4. Pipelines

Below is the evolution of the reactive and proactive indicators for Pipelines. The data include the information reported in "transport – pipelines for liquids", "transport – pipelines for gases" and "transport – pipelines not separated". The data prior to 2009 correspond only to "transport - pipelines for liquids."





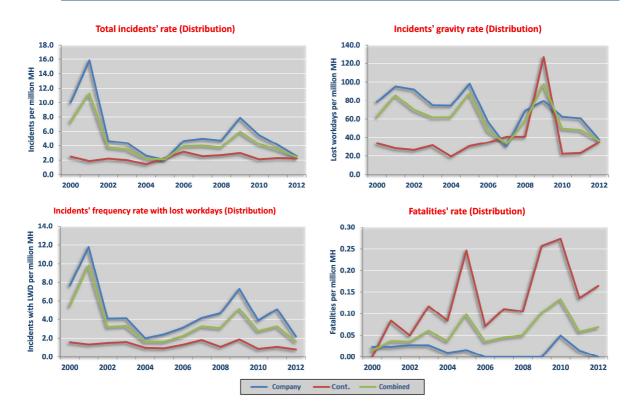
4.4.2. Proactive indicators





4.5. Distribution

Below is the evolution of the reactive and proactive indicators for Distribution.



4.5.1. Reactive indicators

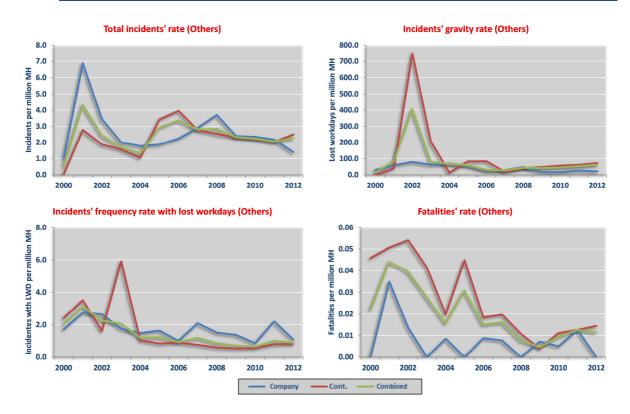
4.5.2. Proactive indicators





4.6. Other

Below is the evolution of the reactive and proactive indicators for Others.



4.6.1. Reactive indicators

4.6.2. Proactive indicators

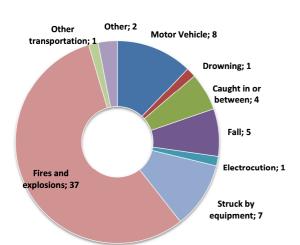




5. CAUSES OF FATALITIES

This chapter presents an analysis of the fatalities reported in 2012 by companies and contractors, providing a breakdown by cause, type of activity and function. In turn, it presents a historical comparative analysis of the causes of fatalities reported from 2001 to date.

In 2012, a total of 66 fatalities were reported, one more than those reported in 2011. The main cause of fatalities in 2012 was fires and explosions, accounting for more than 50% of the deaths due to incidents with multiple fatalities due to this cause, becoming the main historical cause of fatalities since data has been collected (2001).



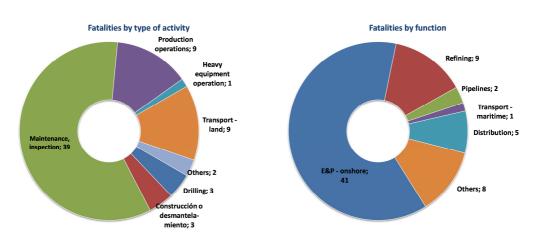
5.1. Fatalities by cause

679 Fatalities have been recorded since 2001, which means that **on average more than one worker per week loses his/her life** in the oil and gas industry in Latin America and the Caribbean.

The three main causes of fatalities recorded in 2012 (fires and explosions, car accidents and hit by equipment) have followed the historical trend, as shown in the table below.

Fatalities 2001 – 2012 (by cause)										
Cause	# Fat.	%								
Fires and explosions	136	20%								
Motor vehicle accident	105	15%								
Struck by equipment	100	15%								
Fall	68	10%								
Caught in or between	57	8%								
Drowning	56	8%								
Electrocution	50	7%								
Toxic gas or liquid	36	5%								
Other transportation	36	5%								
Others	34	5%								
No data available	1	0%								
Total	679	100%								

5.2. Fatalities by type of activity and work function



In 2012, Inspection and Maintenance (39) was the activity that recorded more fatalities, while E&P (41) was again the function in which more workers died during the year.



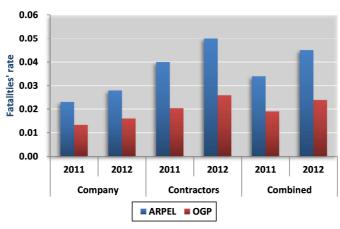
5.3. Comparisons with international references

Following is a comparison between the data of fatalities in E&P of ARPEL and OGP (International Oil and Gas Producers Association) member companies.

The overall rate of fatalities in E&P for ARPEL companies in 2012 was 0.045 fatalities per million hours worked, which represents a much higher value than that shown by OGP companies for the same period (0.024).

Fatality rates are also higher when broken down by company (0.028 ARPEL vs. 0.016 OGP) and by contractors (0.050 ARPEL vs. 0.026 OGP).

The three main causes of fatality presented by OGP ("fires and explosions", "caught in or between" and "struck by") match those recorded by ARPEL companies for E&P.



ARPEL vs OGP E&P Fatalities' rate



6. GLOSSARY OF TERMS

Case involving lost workdays

All non-fatal cases that result in the worker being away from work at least one business day after the day of the injury or disease. The day on which the worker goes home before the end of his workday is not considered in this item. Fatalities, as well as restricted labor activity days are excluded, since they are recorded separately.

Case involving restricted workdays

All non-fatal cases implying days of restricted activity of the usual tasks after the day of the injury or disease. Fatalities must be excluded.

Case involving medical treatment

All treatment cases of injuries / diseases administered by doctors, registered professionals or nonmedical personnel. The medical treatment does not 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.

Company worker

Any person employed by the reporting company or included in its payroll.

Contractor

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

Number of days away from work

The total number of days (consecutive or not) after the day when the injury or disease occurred, on which the workers involved (according to the definition of case involving lost workdays) should have worked but did not, as a result of the occupational injury or disease, until the day they get back to work. The day the person starts to work is excluded. Weekends and holidays are included, even if the employee was not scheduled to work.

This definition has to be distinguished from 'cases with lost work days' which include those incidents that generated lost work days –the number of incidents, not the number of days- and which is used to calculate the 'frequency of incidents with lost work days'

Recordable case - disease

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

Recordable case - fatality

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

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.

Recordable cases - total

The sum of Recordable cases – Injury, Recordable cases – Disease and Recordable cases – Fatalities.



Tasks planned observations (TPO)

"Tasks 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 obtain a certain result of the service which is pre-established within the company, is studied by well trained and qualified personnel. The referred study includes hazard identification and risk management during normal task performance and comprises observations of immediate and basic aspects as well as systematic 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 human resources or material loss.

Worked hours

Hours worked by both the company workers and contractors' workers (separately recorded).

Work relatedness

An injury or disease is to be considered to be work-related if an event or exposure in the work environment caused or contributed to the resulting condition or significantly aggravated a preexisting injury or disease. Work-relatedness is defined for injuries and diseases resulting from events or exposures occurred in the work environment, defining the work environment as the physical place where one or more employees work or are present due to work reasons. The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of his/her work.



7. ANNEXES

2012 Company Data										Indicators				
Function	Average # of employees	Hours worked (thousands)	Injuries	Illnesses	Fatalities	Total	Cases of Lost Workdays	Number of days away from work	Total	Gravity	Cases of Lost Workdays	Tasa de fatalidades		
E&P Total	101.840	217.667	250	17	6	273	169	6.375	1,254	29,288	0,776	0,028		
E&P offshore	4.841	9.945	41	0	0	41	40	2.218	4,123	223,027	4,022	0,000		
Refining	70.971	168.234	389	71	3	463	273	10.282	2,752	61,117	1,623	0,018		
Pipelines	19.749	42.238	83	1	2	86	42	2.422	2,036	57,342	0,994	0,047		
Transport-Maritime	11.192	20.406	12	0	1	13	7	345	0,637	16,907	0,343	0,049		
Distribution	19.378	42.527	108	0	0	108	93	1.600	2,540	37,623	2,187	0,000		
Others	64.460	141.217	174	24	0	198	154	3.058	1,402	21,655	1,091	0,000		
Total	287.590	632.289	1.016	113	12	1.141	738	24.082	1,805	38,087	1,167	0,019		

2012 COntractors De	mulcators											
Function	Average # of employees	Hours worked (thousands)	Injuries	Illnesses	Fatalities	Total	Cases of Lost Workdays	Number of days away from work	Total	Gravity	Cases of Lost Workdays	Tasa de fatalidades
E&P Total	261.263	697.413	1.394	1	35	1.430	530	42.641	2,050	114,791	0,760	0,050
E&P offshore	8.188	17.365	97	0	0	97	94	1.145	5,586	65,938	5,413	0,000
Refining	43.750	106.496	322	0	6	328	103	3.195	3,080	41,469	0,967	0,056
Pipelines	33.936	85.163	174	0	0	174	47	1.176	2,043	14,090	0,552	0,000
Transport-Maritime	456	1.272	2	0	0	2	2	NA	1,572	NA	1,572	0,000
Distribution	15.692	30.438	63	0	5	68	25	927	2,234	34,973	0,821	0,164
Others	264.764	552.159	1.373	0	8	1.381	462	38.162	2,501	73,495	0,840	0,014
Total	619.861	1.472.941	3.328	1	54	3.383	1.169	86.101	2,297	79,891	0,795	0,037

* Gravity indicator is calculated with the following values of man hours worked (in thousands): E&P - 371.467 / Refining - 77.046 / Pipelines - 83.464 / Distribution - 26.506 / Others - 519.243 // Total - 1.077.727 ** Cases of Lost Workdays Indicator is calculated with the following values of man hours worked (in thousands): Others - 550.207 // Total - 1.470.989

2012 Co	ոտի	ined	D:

2012 Combined Dat	a	Indicators										
Function	Average # of employees	Hours worked (thousands)	Injuries	Illnesses	Fatalities	Total	Cases of Lost Workdays	Number of days away from work	Total	Gravity	Cases of Lost Workdays	Tasa de fatalidades
E&P Total	363.103	915.080	1.645	18	41	1.704	699	49.016	1,862	83,200	0,764	0,045
E&P offshore	13.029	27.310	138	0	0	138	134	3.363	5,053	123,142	4,907	0,000
Refining	114.721	274.730	711	71	9	791	376	13.477	2,879	54,945	1,369	0,033
Pipelines	53.685	127.401	257	1	2	260	89	3.598	2,041	28,623	0,699	0,016
Transport-Maritime	11.648	21.678	14	0	1	15	9	345	0,692	16,907	0,415	0,046
Distribution	35.070	72.965	171	0	5	176	118	2.527	2,412	36,606	1,617	0,069
Others	329.224	693.376	1.547	24	8	1.579	616	41.220	2,277	62,411	0,891	0,012
Total	907.451	2.105.230	4.345	114	66	4.525	1.907	110.183	2,149	64,434	0,907	0,031

*Gravity indicator is calculated with the following values of man hours worked (in thousands):

E&P - 589.134 / Refining - 245.281 / Pipelines - 125.702 / Transport-Maritime - 20.406 / Distribution - 69.033 / Others - 660.460 // Total - 1.710.016

** Cases of Lost Workdays Indicator is calculated with the following values of man hours worked (in thousands): Others - 691.424 // Total - 2.103.278

7.1. 2012 data

7.2. Proactive indicators

					Indicators			
Function	Average # of employees	Hours worked (thousands)	ОРТ	HFS	Task Planned Observations	Safety Training		
E&P Total	29,989	25,264	260,681	73,647	8.69	0.29		
Refining	16,321	20,834	66,238	122,840	4.06	0.59		
Pipelines	11,751	7,109	24,148	31,749	2.05	0.45		
Transport-Maritime	102	204	97	119	0.95	0.06		
Distribution	5,913	5,529	11,959	15,688	2.02	0.28		
Others	33,754	17,622	86,283	78,368	2.56	0.44		
Total	97,830	76,562	449,406	322,411	4.59	0.42		



7.3. Historical data

7.3.1. Reactive indicators

						(
Function	Indicator	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
E&P														
E&P E&P	Total Total	1,167 3.989	2,875 5.379	2,266 2,818	1,742 2,597	2,202 3,070	2,779 4.060	2,865 3.946	3,663 4.092	3,648 4,134	4,184 3,083	6,234 3.038	5,680 3.127	1,254 2,050
E&P	Total	2,231	4,770	2,602	2,397	2,780	3,626	3,592	3,947	3,971	3,467	4,179	3,978	1,860
E&P	Gravity	208,443	146,415	73,670	87,668	212,756	180,887	72,838	85,257	88,789	76,137	73,580	105,415	29,288
E&P	Gravity	61,042	293,985	349,365	206,421	73,007	280,109	69,254	70,599	138,690	84,558	181,485	84,949	114,791
E&P	Gravity	152,856	182,395	256,546	135,954	147,310	226,574	70,764	78,978	117,956	80,649	129,142	94,096	83,200
E&P	Lost Workdays	1,937	1,754	1,858	1,674	1,829	3,447	3,385	2,446	2,355	2,813	3,775	6,234	0,776
E&P	Lost Workdays	3,654	2,779	2,133	2,746	1,893	2,210	2,289	2,289	1,878	1,224	1,131	1,705	0,760
E&P E&P	Lost Workdays Fatalities	2,585 0,073	2,238 0,081	2,009 0,030	2,094 0,026	1,872 0,030	2,497 0,029	2,650 0,008	2,354 0,072	2,076 0,017	1,777 0,019	2,082 0,016	3,217 0,023	0,764 0,028
E&P E&P	Fatalities	0,073	0,081	0,030	0,026	0,030	0,029	0,008	0,072	0,017	0,019	0,016	0,023	0,028
F&P	Fatalities	0,007	0,088	0,054	0,070	0,057	0,037	0,043	0,067	0,034	0,020	0,019	0,040	0,045
Refining		-/	0,000	e/ee :	.,		-,		*/***	.,	*/*= :	*/* = *		
Refining	Total	10,543	4,337	2,667	1,999	2,815	3,719	2,660	3,822	4,000	3,642	6,398	3,294	2,752
Refining	Total	4,872	8,356	2,832	2,699	3,523	8,967	4,741	5,613	6,118	4,706	4,272	4,699	3,080
Refining	Total	9,748	6,368	2,713	2,209	3,036	5,585	3,402	4,568	4,904	4,080	5,434	3,876	2,879
Refining Refining	Gravity Gravity	87,293 31.669	81,486 626.472	99,711 463.375	118,139 339,274	262,201 525,086	263,005 630,935	64,077 118,871	47,367 160,858	101,506 60.941	60,388 40.412	73,248 46,484	48,707 55.182	61,117 41,469
Refining	Gravity	79,491	156,027	463,375 252,275	339,274 153,953	301,468	325,390	72.034	78,747	85,394	40,412 52,660	46,484 61,542	51,075	41,469 54,945
Refining	Lost Workdays	2,447	1,092	2,186	2,029	2,001	5,394	1,654	2,518	2,095	5,110	2,909	4,345	1,623
Refining	Lost Workdays	3.057	2,788	4.638	8,981	1.707	3,394	1,897	3.085	2,093	8,543	1.299	4,545	0.967
Refining	Lost Workdays	2,532	1,333	2,682	3,038	1,906	4,292	1,738	2,743	2,255	6,523	2,170	2,786	1,369
Refining	Fatalities	0,016	0,013	0,030	0,026	0,025	0,060	0,028	0,011	0,049	0,044	0,057	0,033	0,018
Refining	Fatalities	0,096	0,148	0,151	0,091	0,041	0,073	0,103	0,038	0,007	0,040	0,020	0,023	0,056
Refining	Fatalities	0,027	0,048	0,064	0,045	0,030	0,064	0,055	0,022	0,031	0,042	0,040	0,029	0,033
Pipelines		4.040	0.500	1 700	4.475	2.402	5.040				1 500		0.746	
Pipelines	Total	1,319	0,529	1,786	1,475	2,192	5,042	5,744	2,143	2,380	1,590	4,811	2,716	2,036
Pipelines Pipelines	Total Total	1,093 1,265	6,215 0.975	1,631 1,719	1,225 1.353	1,754 1.956	8,042 7.169	7,431 6.877	4,261 3,321	2,893 2.635	3,351 2.632	3,123 3,730	2,891 2.827	2,043 2,041
Pipelines	Gravity	92,626	44,051	66,453	54,432	1,956	214,104	46,918	21,505	2,035	2,632	29,977	25,393	57,342
Pipelines	Gravity	8,153	0,000	10,192	26,136	29,478	33,931	27,681	38,982	27,730	40,909	152,685	22,808	14,090
Pipelines	Gravity	72,450	41.816	39,440	48.044	163,410	177,237	42,433	26,016	34,572	34,787	108.580	23,778	28.623
Pipelines	Lost Workdays	1,451	0,815	0,967	1,239	1,782	2,348	3,000	1,330	1,381	0,941	1,656	1,541	0,994
Pipelines	Lost Workdays	1,093	0,000	0,718	1,480	1,356	1,550	1,008	1,353	1,182	1,004	0,978	1,051	0,552
Pipelines	Lost Workdays	1,365	0,707	0,920	1,276	1,549	2,185	1,694	1,343	1,284	0,978	1,237	1,191	0,699
Pipelines	Fatalities	0,026	0,000	0,017	0,018	0,042	0,000	0,039	0,000	0,017	0,000	0,024	0,082	0,047
Pipelines	Fatalities	0,336	0,396	0,067	0,055	0,054	0,038	0,000	0,032	0,000	0,000	0,026	0,012	0,000
Pipelines	Fatalities	0,100	0,056	0,038	0,036	0,049	0,027	0,013	0,018	0,008	0,000	0,025	0,038	0,016
Distribution Distribution	Total	10,013	15,857	4,642	4,364	2,617	2,024	4,662	4,985	4,700	7,881	5,485	4,081	2,540
Distribution	Total	2,483	1,867	2,203	1,991	1,439	2,266	3,162	2,530	2,691	2,970	2,104	2,289	2,234
Distribution	Total	7,268	11,296	3,773	3,467	2,189	2,110	3,917	3,987	3,771	5,934	4,211	3,446	2,412
Distribution	Gravity	78,701	95,350	92,071	74,798	74,511	98,448	56,815	30,489	69,055	79,820	62,334	60,666	37,623
Distribution	Gravity	33,557	28,241	26,401	31,468	19,532	30,793	34,618	40,859	40,878	127,176	22,337	23,255	34,973
Distribution	Gravity	62,248	85,829	70,102	61,742	62,087	87,951	47,456	33,278	57,873	97,948	49,745	48,087	36,606
Distribution	Lost Workdays	7,640	11.789	4,089	4,117	2,006	2,420	3,119	4,149	4,664	7,287		5.115	2.187
Distribution	Lost Workdays											3,882		
Distribution Distribution		1,572	1,339	1,497	1,601	1,004	0,946	1,314	1,811	1,093	1,880	0,881	1,092	0,821
DISTINUTION	Lost Workdays	1,572 5,429	1,339 9,830	1,497 3,184	3,292	1,642	1,634	2,223	3,246	3,066	1,880 5,143	0,881 2,750	1,092 3,252	0,821 1,617
Distribution	Fatalities	1,572 5,429 0,024	1,339 9,830 0,024	1,497 3,184 0,027	3,292 0,027	1,642 0,010	1,634 0,016	2,223 0,000	3,246 0,000	3,066 0,000	1,880 5,143 0,000	0,881 2,750 0,050	1,092 3,252 0,015	0,821 1,617 0,000
Distribution Distribution		1,572 5,429 0,024 0,000	1,339 9,830	1,497 3,184 0,027 0,049	3,292 0,027 0,117	1,642 0,010 0,084	1,634 0,016 0,247	2,223 0,000 0,071	3,246 0,000 0,111	3,066 0,000 0,105	1,880 5,143 0,000 0,257	0,881 2,750 0,050 0,273	1,092 3,252 0,015 0,136	0,821 1,617 0,000 0,164
Distribution Distribution Others	Fatalities Fatalities	1,572 5,429 0,024	1,339 9,830 0,024 0,084	1,497 3,184 0,027	3,292 0,027	1,642 0,010	1,634 0,016	2,223 0,000	3,246 0,000	3,066 0,000	1,880 5,143 0,000	0,881 2,750 0,050	1,092 3,252 0,015	0,821 1,617 0,000
Distribution	Fatalities Fatalities	1,572 5,429 0,024 0,000	1,339 9,830 0,024 0,084	1,497 3,184 0,027 0,049	3,292 0,027 0,117	1,642 0,010 0,084	1,634 0,016 0,247	2,223 0,000 0,071	3,246 0,000 0,111	3,066 0,000 0,105	1,880 5,143 0,000 0,257	0,881 2,750 0,050 0,273	1,092 3,252 0,015 0,136	0,821 1,617 0,000 0,164
Distribution Others Others Others	Fatalities Fatalities Fatalities Total Total Total	1,572 5,429 0,024 0,000 0,015 1,030 0,046	1,339 9,830 0,024 0,084 0,037 6,879 2,775	1,497 3,184 0,027 0,049 0,035 3,441 1,877	3,292 0,027 0,117 0,060 2,011 1,573	1,642 0,010 0,084 0,036 1,784 1,050	1,634 0,016 0,247 0,098 1,880 3,425	2,223 0,000 0,071 0,035 2,235 3,959	3,246 0,000 0,111 0,045 2,903 2,767	3,066 0,000 0,105 0,050 3,701 2,530	1,880 5,143 0,000 0,257 0,101 2,403 2,323	0,881 2,750 0,050 0,273 0,134 2,350 2,217	1,092 3,252 0,015 0,136 0,058 2,180 2,033	0,821 1,617 0,000 0,164 0,069 1,402 2,501
Distribution Others Others Others Others	Fatalities Fatalities Fatalities Total Total Total Total	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441	3,292 0,027 0,117 0,060 2,011 1,573 1,718	1,642 0,010 0,084 0,036 1,784 1,050 1,320	1,634 0,016 0,247 0,098 1,880 3,425 2,933	2,223 0,000 0,071 0,035 2,235 3,959 3,368	3,246 0,000 0,111 0,045 2,903 2,767 2,807	3,066 0,000 0,105 0,050 3,701 2,530 2,846	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277
Distribution Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Total Total Gravity	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655
Distribution Others Others Others Others Others Others	Fatalities Fatalities Total Total Total Gravity Gravity	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 40,308	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,320 17,594 48,340	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965 62,079	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,501 2,277 21,655 73,495
Distribution Others Others Others Others Others Others Others	Fatalities Fatalities Total Total Total Gravity Gravity	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 4,0,308 84,015	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262 44,011	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965 62,079 53,944	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411
Distribution Others Others Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Total Gravity Gravity Gravity Lost Workdays	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 40,308 84,015 2,755	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346 2,652	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707 1,648	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013	3,246 0,000 0,111 2,903 2,767 2,807 29,100 19,148 28,035 2,100	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262 44,011 1,525	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326 1,384	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965 62,079 53,944 2,213	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411 1,091
Distribution Others Others Others Others Others Others Others	Fatalities Fatalities Total Total Total Gravity Gravity	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 4,0,308 84,015	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262 44,011	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965 62,079 53,944	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411
Distribution Others Others Others Others Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Lost Workdays Lost Workdays	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 40,308 84,015 2,755 3,521	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346 2,652 1,619	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707 1,648 0,852	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035 2,100 0,769	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262 44,011 1,525 0,601	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,324 17,594 48,340 41,326 1,384 0,546	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965 62,079 53,944 2,213 0,803	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411 1,091 0,840
Distribution Others Others Others Others Others Others Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Fatalities	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,000 0,046	1,339 9,830 0,024 0,084 0,037 2,775 4,318 59,755 40,308 84,015 2,755 3,521 3,144 0,035 0,051	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346 2,652 1,619 2,262 0,014 0,054	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000 0,041	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 1,212 0,009 0,020	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707 1,648 0,852 1,241 0,000 0,045	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,943 0,009 0,019	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035 2,100 0,769 1,195 0,008 0,020	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,865 0,000 0,011	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326 1,384 0,546 0,728 0,007 0,004	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005 0,001	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 26,965 62,079 53,944 2,213 0,803 1,022 0,013 0,013	0,821 1,617 0,000 0,164 2,609 1,402 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,891 0,000 0,014
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Lost Workdays Lost Workdays Fatalities	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,000	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 40,308 84,015 2,755 3,521 3,114 0,035	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346 2,652 1,619 2,262 0,014	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 1,212 0,009	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707 1,648 0,852 1,241 0,000	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,943 0,009	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035 2,100 0,769 1,195 0,008	3,066 0,000 0,105 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,865 0,000	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326 1,384 0,546 0,728 0,007	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005	1,092 3,252 0,015 0,0136 0,058 2,180 2,033 2,066 26,965 62,079 53,944 2,213 0,803 1,022 0,013	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,891 0,000
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,000 0,046 0,022	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,0308 84,015 2,755 3,521 3,521 3,521 0,035 0,051 0,044	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 1,877 2,441 80,054 749,648 406,346 2,652 1,619 2,262 0,014 0,054 0,040	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000 0,041 0,028	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 1,212 0,009 0,020 0,016	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707 1,648 0,852 1,241 0,000 0,045 0,031	2,223 0,000 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,943 0,009 0,015	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035 2,100 0,769 1,195 0,008 0,020 0,016	3,066 0,000 0,105 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,865 0,000 0,011 0,008	1,880 5,143 0,000 0,257 0,101 2,403 2,340 17,594 48,340 41,326 1,384 0,546 0,728 0,007 0,004 0,005	0,881 2,750 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005 0,001 0,010	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 52,079 53,944 2,213 0,803 1,022 2,213 0,803 1,022 0,013 0,013	0,821 1,617 0,000 0,164 2,501 2,251 2,257 21,655 73,495 62,411 1,091 0,840 0,891 0,000 0,014 0,012
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities	1,572 5,229 0,024 0,000 0,015 	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 59,755 40,308 84,015 2,755 3,521 3,144 0,035 0,051 0,044	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 8,0054 7,49,648 406,346 2,652 1,619 2,262 0,014 0,054 0,040	3,292 0,27 0,117 0,117 0,060 2,011 1,573 1,718 2,06,377 80,217 1,758 2,06,377 80,217 1,758 5,919 2,071 0,000 0,041 0,028	1,642 0,010 0,084 0,036 1,784 1,050 1,320 1,3709 67,041 1,3799 67,041 1,050 1,212 0,000 1,212 0,020 0,020 0,020 0,021 0,020	1,634 0,016 0,247 1,880 3,425 2,933 58,337 83,378 59,707 1,648 83,378 59,707 1,648 0,852 1,241 0,004 0,045 0,031	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 84,504 31,010 0,907 0,943 0,007 0,943 0,019 0,015	3,246 0,000 0,111 0,045 2,903 2,767 2,807 2,907 2,907 2,907 2,907 2,907 2,907 2,907 2,907 2,907 2,907 2,907 2,907 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,903 2,767 2,907	3,066 0,000 0,105 3,701 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,865 0,001 0,865 0,001 0,011 0,008	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326 1,384 0,546 0,728 0,007 0,004 0,005	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005 0,001 0,010	1,092 3,252 0,015 0,136 0,058 2,180 2,056 2,079 5,3,944 2,213 0,803 1,022 0,013 0,013 0,013 0,013	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,840 0,010 0,014 0,012
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Total	Fatalities Fatalities Total Total Total Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities Total Total	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16(,039 1,724 2,428 2,061 0,000 0,046 0,000 0,046 0,000 0,046 0,000 0,046 0,000 0,046 0,000 0,024 2,709	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 84,015 2,755 3,521 3,144 0,035 0,051 3,144 0,035 0,044	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 749,648 406,346 2,652 1,619 2,262 0,014 0,054 0,040 2,784 2,484	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000 0,041 0,028 2,167 2,196	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 1,212 0,009 0,020 0,016 0,010 0,215 1,2,351 2,351	1,634 0,247 0,098 1,880 3,425 2,933 58,436 83,378 59,707 1,648 0,852 1,241 0,000 0,045 0,031 0,045 0,031	2,223 0,000 0,071 0,035 2,235 3,368 28,131 84,504 31,010 1,013 0,907 0,943 0,009 0,015 2,869 4,232	3,246 0,000 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035 2,100 0,769 1,195 0,008 0,020 0,020 0,016 0,016 0,010 0,012 0,008 0,002 0,008 0,000 0,200 0,200 0,512 0,579 3,842	3,066 0,000 0,105 0,050 3,701 2,530 2,846 48,379 42,262 44,017 1,525 0,601 0,865 0,000 0,011 0,086 0,000 0,011 0,088 0,000 0,011 0,865 0,000 0,010 0,050	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,554 48,340 41,326 1,384 0,546 1,384 0,728 0,007 0,004 0,005 3,835 2,967	0,881 2,750 0,050 0,273 0,134 2,217 2,253 16,650 2,217 2,253 16,650 0,671 0,871 0,583 0,660 0,005 0,001 0,005 0,011 0,005 0,011 0,050 0,051 0,050 0,051 0,500 0,73 0,73 0,73 0,73 0,73 0,73 0,73 0,	1,092 3,252 0,015 0,136 0,058 2,130 2,033 2,066 26,079 5,9,04 2,213 0,803 1,022 2,213 0,803 1,022 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,015	0,821 1,617 0,000 0,164 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,891 0,000 0,012 1,805 2,297
Distribution Others	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities Total Total Total	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,046 0,022 5,320 2,709 4,494	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 84,015 2,775 4,318 84,015 2,755 4,030 84,015 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 4,55 4,55 5,415	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 406,346 2,652 1,619 2,262 0,014 0,054 0,054 0,054 0,054 0,054 0,054 2,784 2,482	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 1,756 5,037 2,071 0,000 0,041 0,028	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 1,212 0,020 0,00000000	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 83,378 83,378 9,707 1,648 0,852 1,241 0,004 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,047 0,098 0,0000000000	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,907 0,909 0,019 0,015 2,869 4,232 3,671	3,246 0,010 0,111 0,045 2,903 2,767 2,807 2,910 19,148 28,035 2,100 0,769 1,195 0,020 0,0769 1,195 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,793 1,195 1,1	3,066 0,000 0,105 3,701 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,601 0,601 0,601 0,060 0,011 0,060 0,011 0,005	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 41,326 41,326 0,546 0,546 0,546 0,546 0,546 0,007 0,004 0,005 3,835 2,967 3,287	0,881 2,750 0,050 0,273 0,134 2,257 2,253 16,696 2,739 46,015 0,883 0,660 0,005 0,001 0,010 5,061 2,772 3,609	1,092 3,252 0,015 0,136 0,058 2,180 2,180 2,033 2,066 52,079 53,944 2,213 0,803 53,944 2,213 0,013 0,013 0,013 0,013 0,013 0,013	0,821 1,617 0,000 0,164 2,501 2,257 21,655 73,495 62,411 1,091 0,840 0,840 0,014 0,012 1,805 2,297 2,149
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Total	Fatalities Fatalities Total Total Total Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities Total Total Total Total Gravity	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,000 0,046 0,022 5,320 2,709 4,494 119,188	1,339 9,830 0,024 0,084 0,084 0,087 6,879 2,775 4,318 5,475 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 84,015 2,755 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,0308 4,035 2,755 4,0308 4,035 4,035 4,035 4,035 4,035 4,035 4,044 4,035 4,035 4,044 4,035 4,044 4,035 4,044 4,035 4,044 4,035 4,044 4,035 4,044 4,044 4,044 4,035 4,044 4,044 4,044 4,044 4,044 4,045 4,0444,044 4,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,0444,044 4,044 4,044	1,497 3,184 0,027 0,049 0,049 0,049 0,049 0,049 0,049 0,049 0,040 0,040 0,040 0,040 0,2784 2,484 2,484 2,484 2,655	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000 0,041 0,028 2,167 2,196 2,196 2,198 89,572	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 67,041 1,499 1,212 0,009 0,016 2,351 2,381 2,381 2,381 2,381 2,381	1,634 0,016 0,247 1,880 3,425 2,933 58,436 83,378 59,707 1,648 0,852 59,707 1,648 0,852 1,241 0,000 0,045 0,031 2,811 4,542 3,808 166,014	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,903 0,019 0,015 2,869 4,232 3,671 4,232 3,671 60,290	3,246 0,001 0,111 0,045 2,903 2,767 2,807 29,100 19,148 28,035 2,100 0,769 2,400 0,016 3,579 3,842 3,738 2,4550	3,066 0,000 0,105 0,050 2,846 48,379 42,262 44,011 1,525 0,661 0,265 0,865 0,000 0,011 0,008 3,723 3,748 3,748 3,788,552	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,324 2,340 17,554 48,340 41,326 41,324 0,546 0,007 0,004 0,005 3,835 2,967 3,287 5,7608	0,881 2,750 0,050 0,273 0,273 2,217 2,253 16,596 57,390 46,015 0,871 0,583 0,660 0,005 0,001 0,010 0,010 0,010 0,010 0,010	1,092 3,252 0,015 0,136 0,218 2,180 2,033 2,066 22,965 62,079 5,3,944 2,213 0,803 1,022 0,013 0,013 0,013 0,013 0,013 0,013	0,821 1,617 0,000 0,164 2,501 2,2501 2,277 21,655 73,495 62,411 1,091 0,840 0,840 0,841 0,012 1,805 2,297 2,149 38,087
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Total Total Total Total	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities Total Total Total	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,046 0,022 5,320 2,709 4,494	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,318 84,015 2,775 4,318 84,015 2,755 4,030 84,015 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 3,521 4,55 4,55 5,415	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 406,346 2,652 1,619 2,262 0,014 0,054 0,054 0,054 0,054 0,054 0,054 2,784 2,482	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 1,756 5,037 2,071 0,000 0,041 0,028	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 67,041 1,499 1,050 1,212 0,020 0,00000000	1,634 0,016 0,247 0,098 1,880 3,425 2,933 58,436 83,378 83,378 83,378 9,707 1,648 0,852 1,241 0,004 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,045 0,047 0,098 0,0000000000	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,907 0,909 0,019 0,015 2,869 4,232 3,671	3,246 0,010 0,111 0,045 2,903 2,767 2,807 2,910 19,148 28,035 2,100 0,769 1,195 0,020 0,0769 1,195 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,793 1,195 1,1	3,066 0,000 0,105 3,701 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,601 0,601 0,601 0,060 0,011 0,060 0,011 0,005	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 41,326 41,326 0,546 0,546 0,546 0,546 0,546 0,007 0,004 0,005 3,835 2,967 3,287	0,881 2,750 0,050 0,273 0,134 2,257 2,253 16,696 5,7,390 46,015 0,883 0,660 0,005 0,001 0,010 5,061 2,772 3,609	1,092 3,252 0,015 0,136 0,058 2,180 2,180 2,033 2,066 52,079 53,944 2,213 0,803 53,944 2,213 0,013 0,013 0,013 0,013 0,013 0,013	0,821 1,617 0,000 0,164 2,501 2,257 21,655 73,495 62,411 1,091 0,840 0,840 0,014 0,012 1,805 2,297 2,149
Distribution Others Other Otal Total Total Total	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Gravity Gravity Stalities Fatalities Fatalities Fatalities Total Total Total Total Gravity Gravity	1,572 5,429 0,024 0,000 0,015 1,030 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,046 0,046 0,059 1,724 2,428 2,061 0,046 0,046 0,046 0,046 0,059 1,724 2,428 3,4,94 119,188 34,963	1,339 9,830 0,024 0,084 0,037 2,775 4,318 4,015 2,775 3,527 3,527 3,527 3,527 3,521 3,144 0,035 0,051 0,044 5,415 5,415 101,406 320,162	1,497 3,184 0,027 0,049 0,035 3,441 3,877 2,441 3,80,054 749,648 406,346 2,652 1,619 2,262 0,014 0,054 2,262 0,014 0,054 2,262 0,014 2,284 2,484 2,632 85,615 355,405	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000 0,041 0,028 2,167 2,196 2,183 89,572	1,642 0,010 0,084 0,036 7,784 1,050 1,320 70,119 13,799 67,041 1,499 67,041 1,499 0,020 0,016 2,351 2,381 2,368 174,093 115,214	1,634 0,016 0,247 0,998 1,880 3,425 2,933 2,933 2,933 58,436 83,378 83,378 83,378 0,852 1,241 0,000 0,045 0,031 2,811 4,542 3,808 166,014 295,429	2,223 0,000 0,071 2,235 3,358 3,358 28,131 44,504 31,010 1,013 0,907 0,015 0,015 2,869 4,232 3,671 60,290	3,246 0,010 0,111 0,045 2,903 2,767 2,807 2,807 2,807 2,807 2,9100 1,9148 2,8,035 2,100 0,769 1,195 0,020 0,016 3,579 3,842 3,738 5,4,950	3,066 0,000 0,105 0,500 	1,880 5,143 0,000 0,257 2,403 2,323 2,340 17,554 48,340 41,326 1,384 0,546 0,728 0,004 0,004 0,005 2,967 3,287 5,268 2,265	0,881 0,750 0,050 0,273 0,134 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005 0,001 0,005 0,001 0,005 0,001 0,005 0,001 0,005 0,005 0,005 0,005 0,005 0,010 0,050 0,010 0,050 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,247 0,050 0,273 0,247 0,050 0,273 0,247 0,247 0,250 0,273 0,247 0,247 0,250 0,273 0,247 0,247 0,247 0,247 0,050 0,273 0,247 0,247 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,273 0,050 0,073 0,050 0,073 0,013 0,050 0,073 0,073 0,073 0,073 0,073 0,073 0,073 0,073 0,073 0,073 0,073 0,073 0,070 0,070 0,070 0,050 0,071 0,050 0,005 0,00000000	1,092 3,252 0,015 0,015 0,058 2,180 2,033 2,066 2,079 53,944 2,213 0,803 2,6965 53,944 2,213 0,803 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,015 0,005 0,001 0,005 0,001 0,005 0,001 0,00000000	0,821 1,617 0,000 0,164 0,069 2,501 2,250 2,257 2,1,655 73,495 62,411 1,091 0,840 0,891 0,000 0,014 0,012 1,805 2,297 2,149 38,087 79,891
Distribution Others Other Others Other Others Other Others Others Others Others Others Others Other Others Other Other Others Other Other Others Other O	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities Fatalities Fatalities Fatalities Fatalities Fatalities	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,000 0,046 0,022 5,320 2,709 4,494 119,188 34,963 92,562	1,339 9,830 0,024 0,084 0,037 2,775 4,318 59,755 3,521 3,144 0,035 0,051 0,044 5,319 5,415 101,406 320,162 2,973 2,783	1,497 3,184 0,027 0,049 0,035 3,441 8,0,054 4,06,348 4,06,346 2,652 1,619 2,262 0,014 0,054 0,040 2,784 2,484 2,632 8,5,615 355,408 228,874	3,292 0,027 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 2,071 0,028 0,041 0,028 2,167 2,196 2,188,257 118,290 2,054 118,290 2,2054	1,642 0,010 0,084 0,036 1,784 1,050 13,799 1,050 1,212 1,499 1,050 1,212 0,009 0,020 0,016 2,351 2,381 2,368 174,093 115,214 157,413 1,838 1,555	1,634 0,247 0,098 3,425 2,933 58,436 83,378 83,378 83,378 83,378 83,378 1,648 0,852 1,241 0,452 0,452 1,241 4,542 3,808 166,014 295,429 3,808 166,014 295,429 202,007 3,183 1,952	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,943 0,009 0,015 2,869 4,232 3,671 60,290 65,242 2,313 1,817	3,246 0,000 0,111 0,045 2,903 2,767 2,807 2,907 2,907 2,907 2,907 2,910 1,9148 2,035 2,100 0,769 1,195 2,100 0,026 0,000 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,026 0,000 0,026 0,000000	3,066 0,105 0,105 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,865 0,000 0,010 0,008 3,723 3,748 3,738 3,738 8,738 8,748 8,774 8,275 8,2	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326 41,326 1,384 0,728 0,007 0,004 0,005 3,835 2,967 3,287 3,287 3,287 3,287 3,287 57,608 62,625 5,608 60,496 3,387 1,733	0,881 2,750 0,050 0,273 0,234 2,217 2,253 16,696 57,390 46,015 0,871 0,687 0,005 0,001 0,010 5,061 2,772 3,656 0,005 0,001 2,772 3,656 10,2874 82,393 2,738 0,904	1,092 3,252 0,015 0,136 0,025 2,180 2,180 2,033 2,066 22,033 2,066 22,033 2,066 22,213 0,013 0,013 0,013 0,013 0,013 0,013 0,013	0,821 1,617 0,000 0,164 2,501 2,257 21,655 73,495 62,411 1,091 0,840 0,840 0,841 0,000 0,014 0,012 1,805 2,297 2,149 38,087 79,891 64,434 1,167 0,795
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Total	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Gravity Gravity Statities Fatalities Fatalities Fatalities Total Total Total Total Gravity Gravity Gravity Gravity Gravity Lost Workdays	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,059 1,724 2,428 2,061 0,000 0,046 0,022 0,000 5,320 0,004 0,004 0,005 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,005 0,059 0,005 0,059 0,059 0,005 0,005 0,005 0,005 0,059 0,059 0,059 0,005 0,000 0,005 0,000 0,005 0,000 0,005 0,000 0,005 0,000 0,005 0,000000	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,038 84,015 2,755 3,521	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 7,49,648 406,346 2,652 1,619 2,262 0,014 0,056 0,0560	3,292 0,027 0,117 0,060 2,011 1,573 1,718 206,377 80,217 1,756 2,919 2,071 0,000 0,041 0,028 2,167 2,196 2,196 2,196 2,196 2,196 2,195 2,054 3,390 2,054 3,390	1,642 0,010 0,084 0,036 1,784 1,050 1,320 1,320 1,320 1,320 1,329 67,041 1,499 67,041 1,499 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 1,2,351 2,383 2,555 2,	1,634 0,016 0,247 0,098 3,425 2,933 3,425 2,933 3,58,436 83,378 83,378 83,378 83,378 83,378 1,648 0,852 1,241 0,000 0,045 0,00	2,223 0,000 0,071 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,907 0,909 0,019 0,009 0,019 0,009 0,019 0,009 0,019 0,009 0,019 0,009 0,019 0,003 0,02,313 1,815 0,003 0,000 0,00000000	3,246 0,000 0,111 0,045 2,903 2,767 2,807 2,907 2,9100 19,148 28,035 2,100 0,769 1,195 2,100 0,769 1,195 0,008 0,0200000000	3,066 0,000 0,105 0,050 2,846 2,846 2,846 48,379 42,262 44,011 1,525 0,601 0,060 0,001 0,001 0,001 0,001 0,001 0,011 0,065 0,000 0,011 0,000 0,011 0,723 3,748 3,738 78,952 84,600 82,174 2,226 1,471	1,880 5,143 0,000 0,257 0,101 2,403 2,340 17,594 48,340 17,594 41,326 1,384 0,584 0,728 0,004 0,004 0,005 0,000 0,004 0,005 0,005 0,005 0,005 0,005 0,005 0,005 0,007 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,257 0,257 0,232 0,232 0,234 0,244 0,546 0,000000	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005 0,001 0,010 5,060 0,001 0,010 5,060 0,011 0,010 5,057 3,609 5,4,537 102,874 82,393 2,738 0,904 1,573	1,092 3,252 0,015 0,015 0,058 2,180 2,033 2,066 52,074 2,213 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,015 0,005 0,001 0,005 0,00000000	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,891 0,891 0,012 1,805 2,297 2,149 38,087 79,891 64,434 1,167 0,795 0,907
Distribution Others Other	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays Fatalities Fatalities Fatalities Fatalities Total Total Total Total Gravity Gravity Gravity Gravity Gravity Lost Workdays Lost Workdays Lost Workdays	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 30,757 0,000 16,039 1,724 2,428 2,061 0,046 0,022 0,022 0,000 0,449 4,494 119,188 34,963 92,562 2,668 2,817 2,715	1,339 9,830 0,024 0,084 0,037 2,775 4,318 5,9,755 3,521 3,144 0,035 0,051 0,044 5,319 5,415 0,054 5,415 101,406 320,162 5,415 101,406 320,162 2,778 3,271 0,043	1,497 3,184 0,027 0,049 0,035 3,441 3,877 2,441 80,054 749,648 406,346 2,652 1,619 2,262 0,014 0,054 2,784 2,462 2,784 2,854 2,854 2,854 2,854 2,854 2,260 2,269 0,026	3,292 0,227 0,117 0,060 2,011 1,573 1,718 62,328 206,377 80,217 1,756 5,919 2,071 0,000 0,021 2,167 2,196 2,188 2,572 188,257 118,290 2,054 18,290 2,390 2,410 0,021	1,642 0,010 0,084 0,036 1,784 1,050 1,320 70,119 13,799 1,67041 1,499 1,650 1,212 0,009 0,016 2,351 2,361 2,361 2,361 2,361 15,214 15,55 1,575 1,575 0,022	1,634 0,247 0,247 1,880 3,425 2,933 58,436 83,378 83,378 83,378 83,378 83,378 9,707 1,648 83,378 0,852 1,241 0,000 0,045 2,811 4,542 3,808 166,014 295,429 202,007 3,183 295,429 202,007 3,185 21,952 2,2402 0,028	2,223 0,000 0,071 0,035 2,235 3,959 3,368 28,131 4,504 31,010 1,013 0,907 0,943 0,009 0,015 2,869 4,232 3,671 60,290 65,242 62,330 2,311 65,242 62,230 2,311 7,2023 0,017	3,246 0,000 0,111 2,903 2,767 2,807 2,9,100 19,148 28,035 2,100 0,769 1,195 0,008 0,020 0,016 3,579 3,842 3,738 54,950 3,579 3,842 3,738 64,096 2,479 1,834 2,120 0,032	3,066 0,105 0,105 2,530 2,530 2,846 48,379 42,262 44,011 1,525 0,601 0,008 0,001 0,008 3,723 3,748 3,738 3,738 3,738 3,738 3,738 3,748 3,738 3,748 3,738 3,748 3,738 3,748 3,738 3,748 3,738 3,748 3,738 3,748 3,774 3,748 3,774	1,880 5,143 0,000 0,257 0,101 2,403 2,323 2,340 17,594 48,340 41,326 1,384 0,546 1,384 0,728 0,007 0,004 0,005 3,287 3,287 3,287 3,287 3,287 5,663 60,496 3,387 1,733 2,343 0,020	0,881 2,750 0,050 0,273 0,234 2,217 2,253 16,696 57,390 46,015 0,871 0,686 0,005 0,011 0,010 5,061 2,772 3,609 54,537 102,874 82,393 2,738 0,904 1,573 0,022	1,092 3,252 0,015 0,136 0,058 2,180 2,033 2,066 52,079 53,944 2,213 0,803 7,026 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,015 8,291 6,155 66,155 66,255 4,695 1,251 2,216	0,821 1,617 0,000 0,164 2,501 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,840 0,014 0,012 1,805 2,297 2,149 38,087 79,891 64,434 1,167 0,795 0,907 0,019
Distribution Others Others Others Others Others Others Others Others Others Others Others Others Others Others Others Total	Fatalities Fatalities Fatalities Total Total Gravity Gravity Gravity Gravity Gravity Gravity Statities Fatalities Fatalities Fatalities Gravity Gravity Gravity Gravity Gravity Gravity Lost Workdays	1,572 5,429 0,024 0,000 0,015 1,030 0,046 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,559 0,059 1,724 2,428 2,061 0,000 0,046 0,022 0,000 5,320 0,004 0,004 0,005 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,059 0,005 0,059 0,005 0,059 0,059 0,005 0,005 0,005 0,005 0,059 0,059 0,059 0,005 0,000 0,005 0,000 0,005 0,000 0,005 0,000 0,005 0,000 0,005 0,000000	1,339 9,830 0,024 0,084 0,037 6,879 2,775 4,038 84,015 2,755 3,521	1,497 3,184 0,027 0,049 0,035 3,441 1,877 2,441 80,054 7,49,648 406,346 2,652 1,619 2,262 0,014 0,056 0,0560	3,292 0,027 0,117 0,060 2,011 1,573 1,718 206,377 80,217 1,756 2,919 2,071 0,000 0,041 0,028 2,167 2,196 2,196 2,196 2,196 2,195 2,195 2,054 3,390 2,654 3,390	1,642 0,010 0,084 0,036 1,784 1,050 1,320 1,320 1,320 1,320 1,329 67,041 1,499 67,041 1,499 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 0,020 1,2,351 2,383 2,555 2,	1,634 0,016 0,247 0,098 3,425 2,933 3,425 2,933 3,58,436 83,378 83,378 83,378 83,378 83,378 1,648 0,852 1,241 0,000 0,045 0,00	2,223 0,000 0,071 2,235 3,959 3,368 28,131 84,504 31,010 1,013 0,907 0,907 0,909 0,019 0,009 0,019 0,009 0,019 0,009 0,019 0,009 0,019 0,009 0,019 0,003 0,02,313 1,815 0,003 0,000 0,00000000	3,246 0,000 0,111 0,045 2,903 2,767 2,807 2,907 2,9100 19,148 28,035 2,100 0,769 1,195 2,100 0,769 1,195 0,008 0,0200000000	3,066 0,000 0,105 0,050 2,846 2,846 2,846 48,379 42,262 44,011 1,525 0,601 0,060 0,001 0,001 0,001 0,001 0,001 0,011 0,065 0,000 0,011 0,000 0,011 0,723 3,748 3,738 78,952 84,600 82,174 2,226 1,471	1,880 5,143 0,000 0,257 0,101 2,403 2,340 17,594 48,340 17,594 41,326 1,384 0,584 0,728 0,004 0,004 0,005 0,000 0,004 0,005 0,005 0,005 0,005 0,005 0,005 0,005 0,007 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,000 0,257 0,257 0,257 0,232 0,232 0,234 0,244 0,546 0,000000	0,881 2,750 0,050 0,273 0,134 2,350 2,217 2,253 16,696 57,390 46,015 0,871 0,583 0,660 0,005 0,001 0,010 5,060 0,001 0,010 5,060 0,011 0,010 5,057 3,609 5,4,537 102,874 82,393 2,738 0,904 1,573	1,092 3,252 0,015 0,015 0,058 2,180 2,033 2,066 52,074 2,213 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,013 0,015 0,005 0,001 0,005 0,00000000	0,821 1,617 0,000 0,164 0,069 1,402 2,501 2,277 21,655 73,495 62,411 1,091 0,840 0,891 0,891 0,012 1,805 2,297 2,149 38,087 79,891 64,434 1,167 0,795 0,907



7.3.2. Reactive indicators (E&P offshore)

Indicator	Category	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total	Company	2.04	2.03	2.98	3.20	2.79	5.64	3.90	5.43	9.75	9.31	4.123
Total	Contractors	2.36	1.46	3.40	3.35	1.62	6.86	3.55	2.39	2.38	2.68	5.586
Total	Combined	2.22	1.73	3.11	3.27	2.17	6.13	3.77	4.43	7.72	7.29	5.053
Gravity	Company	112.40	114.22	126.48	103.24	79.26	125.55	66.57	52.69	43.74	22.06	223.027
Gravity	Contractors	50.90	11.29	10.58	81.04	28.58	59.84	215.16	87.12	113.89	129.24	65.938
Gravity	Combined	85.80	110.27	122.46	97.37	52.12	108.88	91.38	57.73	50.36	58.06	123.142
Lost Workdays	Company	1.74	1.97	3.25	7.44	2.36	4.10	3.18	4.41	6.41	12.19	4.022
Lost Workdays	Contractors	2.01	1.03	2.71	2.85	1.20	6.39	5.36	1.95	3.32	2.44	5.413
Lost Workdays	Combined	1.90	1.93	3.07	4.58	1.74	4.68	3.55	3.60	6.12	9.49	4.907
Fatalities	Company	n/a	0.06	0.02	0.00	0.00	0.19	0.00	0.00	0.01	0.01	0.000
Fatalities	Contractors	0.05	0.09	0.17	0.04	0.01	0.61	0.03	0.03	0.04	0.03	0.000
Fatalities	Combined	0.05	0.08	0.07	0.02	0.01	0.36	0.01	0.01	0.02	0.02	0.000

7.3.3. Proactive indicators

Task Planned Observations Indicator (Company)										
Function	2005	2006	2007	2008	2009	2010	2011	2012		
E&P	1.83	1.07	1.28	1.01	4.87	1.45	3.12	8.69		
Refining	2.21	0.99	1.60	2.51	7.05	15.93	5.22	4.06		
Pipelines	1.18	1.59	0.92	1.25	2.42	3.81	1.98	2.05		
Distribution	2.63	1.36	1.38	1.64	1.24	1.01	1.88	2.02		
Others	0.28	1.44	0.57	1.41	3.23	1.29	2.19	2.56		
Global	1.96	1.15	1.12	1.35	3.93	3.70	3.27	4.59		

Safety Training Intensity (Company)										
Function	2005	2006	2007	2008	2009	2010	2011	2012		
E&P	0.62	0.21	0.22	0.14	0.10	0.32	0.30	0.29		
Refining	0.29	0.26	0.21	0.21	0.30	0.83	0.35	0.59		
Pipelines	0.10	2.54	1.19	1.68	0.16	2.49	0.97	0.45		
Distribution	0.08	0.15	0.10	1.13	0.10	0.19	0.19	0.28		
Others	0.19	0.11	0.02	0.10	0.26	0.32	0.18	0.44		
Global	0.36	0.24	0.18	0.20	0.17	0.45	0.30	0.42		

8. **REFERENCES**

- 1. Manual de Usuario de ARPEL Estadísticas sobre accidentes en la Industria Petrolera y del Gas en América Latina y El Caribe 6ª Edición, 2012. ARPEL. Montevideo.
- "OGP Safety Performance Indicators 2012 data". Informe No. 2012s. Mayo, 2013. Disponible en la página web de OGP (<u>http://www.ogp.org.uk/publications/safety-committee/safety-performance-indicators1/3021/</u>)

Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean

ARPEL is a non-profit association gathering companies and institutions of the oil, gas and biofuels sector in Latin America and the Caribbean. It was founded in 1965 with the primary purpose of promoting industry integration and growth as well as seeking ways to maximize its contribution to sustainable energy development in the region.

Its membership represents over 90% of the upstream and downstream activities in the region and includes national and international oil companies, companies providing technology, goods and services to the industry value chain, and oil, natural gas and biofuels sector institutions.

Since 1976 ARPEL holds Special Consultative Status with United Nations Economic and Social Council (ECOSOC). In 2006, the association declared its adherence to UN Global Compact principles.

Mission

To foster and facilitate industry development and integration, continuous operational improvement and effective management of environmental and social issues, by:

- developing, sharing and disseminating best practices;
- carrying out studies that translate in information of value;
- broadening knowledge and helping build required competencies;
- networking and engaging members and stakeholders in constructive dialogue.

Vision

A growing, competitive and integrated oil, gas and biofuels industry that achieves operational and management excellence, and effectively contributes to the sustainable energy development in Latin America and the Caribbean.

Value proposition

ARPEL offers a unique mean for networking, sharing knowledge, joining efforts and building synergies in favor of the sector's integration, growth and sustainability. Without any distinction, members have the opportunity to alternatively lead activities and projects, contribute with their know-how to their development, or learn from the experiences of other members.

ARPEL's value is also reflected in its condition of strategic information center about sector activities in the region and cost-effective vehicle for the development of publications on best practices and benchmarking, as well as on sectoral studies and executive reports aimed at diverse stakeholders. The Association additionally stands out for its regional conferences, forums and seminars of high impact in the industry.

ARPEL is a recognized regional body of representation for the sector that seeks to advocate in favor of the common interests of its membership and to enhance the industry's public image and reputation.

Socio-environmental sustainability Operational excellence Sectoral development

July, 2013

Members Companies and Institutions





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