

IADC ISP PROGRAM

2017



Summary of Occupational Incidents (Industry Totals)

Issued 15 June 2018



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Summary of Occupational Incidents Introductory Briefing:

Data gathered in the IADC Incident Statistics Program (ISP) data base, shows that the oil and gas well drilling industry continues work toward reducing incidents on rigs. With the decrease in rig demand in 2017, the incidence rates increased slightly over 2016. Although IADC ISP calculates both Incidence rates and Frequency rates, this report is based on Incidence rates which are calculated on incidents per 200,000 manhours.

The Summary of Occupational Incidents (SOI) is compiled annually from data volunteered by drilling contractors worldwide to the IADC ISP Program. During 2017, 94 contractors participated in the ISP representing a total of 387,990,136 million man-hours worked. Contractors striving for safety improvement by participating in the ISP program reported 1,048 Recordable incidents, 304 Lost Time incidents including 10 fatalities.

Regional Reporting

Safety data is compiled separately for Land and Offshore operations for nine geographic regions. This report is not designed to measure region against region, but to provide companies operating within each region tools to measure their efforts and make improvement in their safety efforts year over year.

Industry Improvement

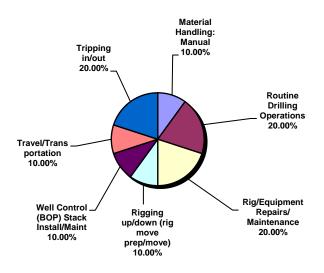
2017 saw the drilling industry's worldwide Lost Time Incidence Rate increase to 0.16 which is a 23.08% change of the 2016 report of 0.13. The 2017 Recordable Incident rate increased to 0.54 which is a 17.39% change over the 2016 report of 0.46. The oil and gas well drilling industry's efforts towards safety have resulted in the industry's occupational LTI Incidence rate to improve from more than 14.00 in 1963 to 0.16 in 2017, which is an 87.5 fold improvement.

Fatalities:

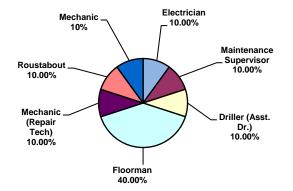
In 2017 the industry's fatalities increased to 10 incidents compared to 9 incidents reported in 2016. According to the data reported in 2017, two (2) fatalities occurred to an employee who had ten or more years of service with the company. Five (5) fatalities occurred to employees who had more than one year but less than five years of service and one (1) with less than three months of service. Two (2) victims had worked for the company between six months and one year. Two (2) fatalities occurred during Rigging up/down. Four (4) victims were struck-by while two (2) were due to caught between incidents. Four (4) of the fatalities occurred to floormen.



Fatal Incidents by activity

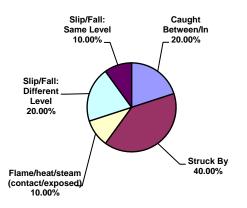


Fatalities by Occupation

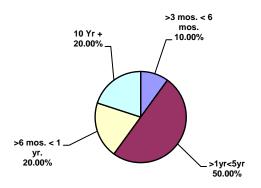


<u>Regional Summaries: Man-Hours vs</u> <u>Fatalities</u>

European Land and Offshore categories together worked more than 69.9 million manhours in 2017 with four (4) fatalities. European offshore accounted for 25.6 million man-hours with one (1) fatality while European Land had 44 million man-hours and three (3) fatalities. US Land and Offshore contractors together worked more than 78 million man-hours with two (2) fatalities. US Land had 55 million man-hours with one (1) fatality while US water had 22.7 million man-hours and one (1) fatality. Canadian contractors accounted for 2.29 million man-hours and zero (0) fatalities. Canadian Land had 1 million man-hours and no fatalities while offshore had 1.2 million man-hours and no



Fatalities by Time in Service

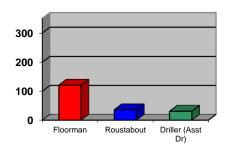


Central America and Caribbean fatalities. accounted for 4 million man-hours with zero (0) fatalities. Land operations reported 400 thousand man-hours and no fatalities while water operations reported just over 3.7 million man-hours and no fatalities. Africa combined land and offshore accounted for 29 million manhours with zero (0) fatalities. Africa Land accounted for 15 million man-hours with zero (0) fatalities while Africa Water had 13.9 million man-hours and no fatalities. The Middle East region accounted for 135 million man-hours with four (4) fatalities. The Land division had 95.6 million man-hours and four (4) fatalities while there were 39.9 million man-hours and no fatalities for the offshore division. Asia Pacific accounted for 46 million man-hours and zero (0)

fatalities. Water had 35.6 million man-hours and no fatalities while the Land Division had 10 million man-hours with no fatalities. **South America** made up 18 million man-hours with no fatalities. Land had 9.5 million man-hours and no fatalities while Water had 8.8 million manhours and no fatalities. **Australasia** made up 3.9 million man-hours with no fatalities. Land had 3 million man-hours with no fatalities while offshore had 600 thousand man-hours with no fatalities.

Lost Time and Recordable Incidents by Region

Lost time incidents among US Offshore workers worsened 22% from 0.09 in 2016 to 0.11 in 2017. The Total Recordable Incidence Rate improved 6.12% from 0.49 in 2016 to 0.46 in 2017. US Land LTI Incidence rate worsened 22.86% from 0.35 in 2016 to 0.43 in 2017 and Recordable Incidence Rate worsened 25% from 1.20 in 2016 to 1.50 in 2017. European Land workers saw their LTI rate worsen 23.5% from 0.17 for 2016 to 0.21 for 2017. The Recordable Incidence Rate worsened 26% from 0.23 in 2016 to 0.29 in 2017. European Offshore workers LTI rate worsened 25% from 0.12 in 2016 to 0.15 in 2017 while the Recordable Incidence rate improved 4% from 0.50 in 2016 to 0.48 in 2017. Canada Land had a 2016 LTI rate of 0.54 which improved 27.78% to 0.39 for 2017, while their Recordable Incidence improved 11.9% from 1.34 in 2016 to 1.18 for 2017. Canada Offshore workers saw their 2016 LTI rate of 0.0 increase to 0.16 for 2017. The Recordable Incidence rate of 0.26 for 2016 worsened 138% to 0.62 for 2017. Central America and Caribbean Land 2016 LTI rate of 0.55 improved 9% to 0.50 for 2017. Their 2016 Recordable Incidence rate of 1.64 improved 69.5% to 0.50 for 2017. Central America and Caribbean Water 2016 LTI Rate of 0.11 worsened 236% to 0.37 in 2017. The Recordable rate of 0.33 for 2016 worsened 218% to 1.05 for 2017. Africa Land LTI rate for 2016 was 0.11 worsened 27% for 0.14 in 2017. (Based on 303 incidents)

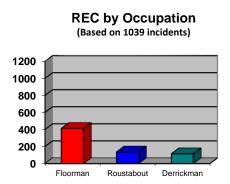




The Recordable Incidence rate worsened 33% from 0.39 in 2016 to 0.52 in 2017. Africa Water LTI rate of 0.01 for 2016 worsened 500% to 0.06 for 2017 and their Recordable Incidence rate worsened 45% from 0.20 in 2016 to 0.29 in 2017. In 2016, Middle East Land had a LTI rate of 0.13 which improved 30.7% to 0.09 in 2017. Their 2016 Recordable Incidence rate of 0.49 improved 22.45% to 0.38 in 2017. Middle East Water LTI rate of 0.05 in 2016 worsened 20% to 0.06 in 2017 and their Recordable Incidence rate worsened 30.77% from 0.26 in 2016 to 0.34 in 2017. Asia Pacific Land 2016 LTI rate was 0.07 and improved 71.4% to 0.02 in 2017, while their Recordable Incidence rate improved 22.2% from 0.18 in 2016 to 0.14 in 2017. Asia Pacific Water 2016 LTI rate of 0.11 improved 36% to 0.07 for 2017 and their Recordable Incidence rate improved 26.67% from 0.30 in 2016 to 0.22 in 2017. In 2016. South America Land had an LTI rate of 0.27 which improved 7.4% to 0.25 in 2017 and a 2016 Recordable rate of 0.71 which worsened 18% to 0.84 in 2017. South America Water 2016 LTI rate was 0.10 which worsened 100% to 0.20 in 2017 and a 2016 Recordable rate of 0.34 that improved 20.59% to 0.27 in 2017. Australasia Land had a 2016 LTI rate of 0.00 which increased to 0.18 for 2017 and Recordable incident rate of 0.48 for 2016 which worsened 12.5% to 0.54 for 2017. Australasia Water had a 2016 LTI rate of 0.00 which increased to 0.61 for 2017 and a 2016 Recordable incident rate of 0.48 which worsened 216% to 1.52 for 2017.

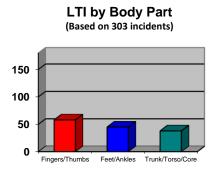
Greatest Risks:

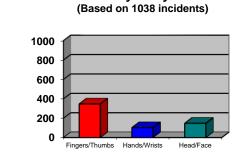
Incidents occur in many places around the rig and to all crewmembers. Many types of equipment and rig operations are involved in incidents and all parts of the body are at risk. Incident data are analyzed by occupation, body part, incident type, equipment type, operation, location time in service and time of day the incident occurred.





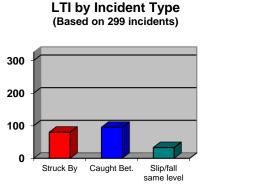
Data from the IADC ISP show that of all the categories, as with previous years, the Floorman position suffers the largest percentage of Lost Time and Recordable injuries.

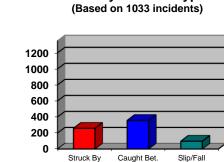




REC by Body Part

Fingers remained the most vulnerable part of the body.



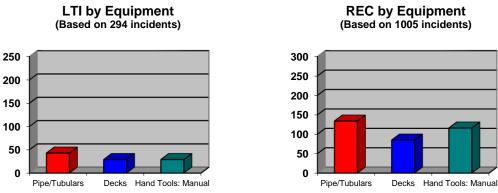


REC by Incident Type

Caught Bet

Same Level

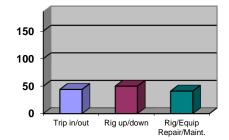
Caught Between accounted for most Lost Time and Recordable injuries and was closely followed by Struck by injuries.



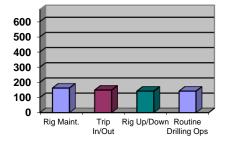
Pipe/Tubulars is the equipment responsible for the most Lost Time and Recordable incidents.



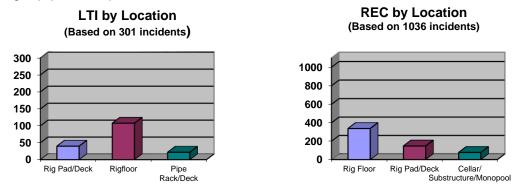
LTI by Activity (Based on 302 incidents)



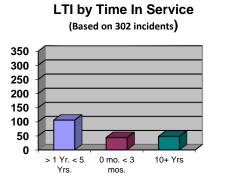
REC by Activity (Based on 1031 incidents)



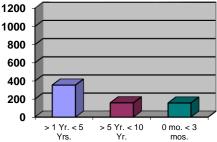
"Rigging up/down" accounted for the most LTI. The most recordable incidents occurred during "Rig/Equipment Repair/Maintenance".



The most Lost Time and Recordable injuries in drilling operations occur on the rig floor.

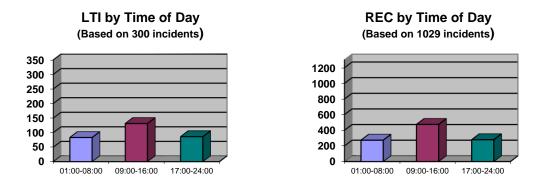




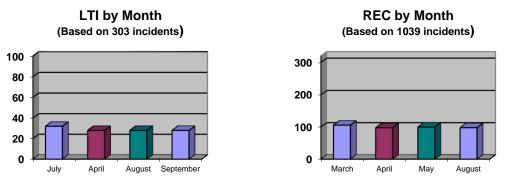


Lost Time and Recordable injuries based on Time in Service were led by employees with between one to five years of service.





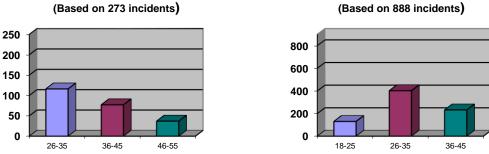
The Most LTI and Recordable incidents occurred between 09:00-16:00 hours.



July accounted for the most Lost Time and March accounted for the most Recordable incidents.

REC by Age

LTI by Age



26 – 35 age range accounted for the most Lost Time and Recordable incidents.

Conclusion:

Activity in most sectors of the industry decreased in 2017. Overall, Lost Time incidents rates and Recordable incident rates increased slightly in 2017 as compared to 2016, an increase attributable to regions which experienced an uptick in rig activity. The industry also saw the number of fatalities increase by 1.



2017 ISP Program Industry Totals

IADC ISP Program 2017 Final Report (Table 1)

January – December Note: Figures are unaudited

CATEGORY	TOTAL MANHOURS	TOTAL MTOS	TOTAL RWCs	TOTAL LTIs		DCDD		FREQ.	INCD.	DART FREQ. RATE	INCD.	FREQ.
US - Land	55,488,587	164	135	117	1	417	0.43	2.13	0.91	4.56	1.50	7.52
US - Water	22,777,018	23	17	11	1	52	0.11	0.53	0.25	1.27	0.46	2.28
Canada - Land	1,016,078	2	2	2	0	6	0.39	1.97	0.79	3.94	1.18	5.91
Canada - Water	1,280,874	1	2	1	0	4	0.16	0.78	0.47	2.34	0.62	3.12
Central America & Caribbean - Land	400,688	0	0	1	0	1	0.50	2.50	0.50	2.50	0.50	2.50
Central America & Caribbean - Water	3,796,094	8	5	7	0	20	0.37	1.84	0.63	3.16	1.05	5.27
European - Land	44,274,793	10	8	43	3	64	0.21	1.04	0.24	1.22	0.29	1.45
European - Water	25,681,274	28	15	18	1	62	0.15	0.74	0.26	1.32	0.48	2.41
Africa - Land	15,447,105	21	8	11	0	40	0.14	0.71	0.25	1.23	0.52	2.59
Africa - Water	13,944,560	9	7	4	0	20	0.06	0.29	0.16	0.79	0.29	1.43
Middle East - Land	95,628,447	73	66	38	4	181	0.09	0.44	0.23	1.13	0.38	1.89
Middle East - Water	39,906,727	25	31	12	0	68	0.06	0.30	0.22	1.08	0.34	1.70
Asia Pacific - Land	10,325,025	4	2	1	0	7	0.02	0.10	0.06	0.29	0.14	0.68
Asia Pacific - Water	35,689,082	13	15	12	0	40	0.07	0.34	0.15	0.76	0.22	1.12
South America Land	9,518,345	12	16	12	0	40	0.25	1.26	0.59	2.94	0.84	4.20
South America Water	8,824,098	3	0	9	0	12	0.20	1.02	0.20	1.02	0.27	1.36
Australasia – Land	3,331,859	3	3	3	0	9	0.18	0.90	0.36	1.80	0.54	2.70
Australasia – Water	659,482	2	1	2	0	5	0.61	3.03	0.91	4.55	1.52	7.58
					-							
US Combined	78,265,605								-			
Canada Combined	2,296,952	3		3	-				0.61			4.35
Central America & Caribbean Com.	4,196,782		-		-		0.38					
European Combined	69,956,067	38				-						
Africa Combined	29,391,665		-						0.20			2.04
Middle East Combined	135,535,174	98		50							0.37	1.84
Asia Pacific Combined	46,014,107	17		13	0		0.06					-
South America Combined	18,342,443	15	16	21	0	52	0.23	1.14	0.40	2.02	0.57	2.83
Australasia Combined	3,991,341	5	4	5	0	14	0.25	1.25	0.45	2.25	0.70	3.51
INDUSTRY TOTAL	387,990,136	401	333	304	10	1,048	0.16	0.81	0.33	1.67	0.51	2.70

MTO=Medical Treatment Only RWC =Restricted Work Case	INCD = Incidence Rate (200,000 man-hours) :	LTI INCD Rate = (LTI s+ FTLs) * 200000 / Total Man-hours DART INCD Rate = (RWC + LTI + FTL) * 200000 / Total Man-hours RCRD INCD Rate = (MTOs + RWCs + LTIs + FTLs) * 200000 / Total Man-hours
LTI =Lost Time Incident FTL =Fatalities	FREQ = Frequency Rate (1,000,000 man-hours):	LTI FREQ Rate = (LTI s+ FTLs) * 1000000 / Total Man-hours DART FREQ Rate = (RWC + LTI + FTL) * 1000000 / Total Man-hours RCRD FREQ Rate = (MTOs + RWCs + LTIs + FTLs) * 1000000 / Total Man-hours
RCRD =Total Recordables		



IADC ISP Program 5 Year Summary Report (Table 2) Lost Time and Total Recordable Incidence/Frequency Rate

Lost Time and Total Recordat					15		2014		2013		
				20		20	15	20		20	513
CATEGORIES	TYPE	INCD Rate	FREQ Rate	INCD	FRE Q	INCD	FREQ	INCD	FRE Q	INCD	FREQ
		Nale	Nale	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate
	LTI:	0.43	2.13	0.35	1.74	0.31	1.55	0.41	2.07	0.51	2.54
US Land	DART:	0.91	4.56	0.78	3.89	0.72	3.58	0.93	4.67	0.96	4.81
oo Lana	RCRD:	1.50	7.52	1.20	5.98	1.22	6.10	1.54	7.72	1.58	7.92
	LTI:	0.11	0.53	0.09	0.43	0.12	0.61	0.14	0.71	0.15	0.74
US Water	DART:	0.25	1.27	0.30	1.48	0.35	1.77	0.32	1.60	0.45	2.24
	RCRD:	0.46	2.28	0.49	2.45	0.56	2.82	0.64	3.19	0.78	3.91
	LTI:	0.39	1.97	0.54	2.68	0.14	0.68	0.29	1.46	0.61	3.05
Canada Land	DART:	0.79	3.94	1.34	6.70	0.41	2.04	0.73	3.64	0.76	3.82
	RCRD:	1.18	5.91	1.34	6.70	1.36	6.79	2.33	11.66	1.98	9.92
	LTI:	0.16	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Canada Water	DART:	0.47	2.34	0.26	1.29	0.53	2.67	0.42	2.09	0.24	1.20
	RCRD:	0.62	3.12	0.26	1.29	0.80	4.01	0.70	3.49	0.24	1.20
Central America &	LTI:	0.50	2.50	0.55	2.73	0.98	4.92	0.43	2.16	0.27	1.37
Central America & Caribbean Land	DART:	0.50	2.50	1.09	5.46	1.09	5.47	0.48	2.39	0.46	2.28
	RCRD:	0.50	2.50	1.64	8.19	1.59	7.93	0.65	3.23	0.64	3.20
Central America &	LTI:	0.37	1.84	0.11	0.55	0.18	0.90	0.34	1.68	0.22	1.11
Central America & Caribbean Water	DART:	0.63	3.16	0.28	1.38	0.43	2.16	0.45	2.24	0.37	1.86
	RCRD:	1.05	5.27	0.33	1.65	0.61	3.05	0.90	4.48	0.54	2.72
South America	LTI:	0.25	1.26	0.27	1.35	0.25	1.25	0.19	0.97	0.16	0.79
Land	DART:	0.59	2.94	0.59	2.94	0.55	2.73	0.42	2.10	0.37	1.84
	RCRD:	0.84	4.20	0.71	3.53	0.72	3.62	0.54	2.69	0.51	2.54
South America	LTI:	0.20	1.02	0.10	0.50	0.22	1.09	0.26	1.28	0.27	1.33
Water	DART:	0.20	1.02	0.20	1.01	0.40	1.98	0.38	1.92	0.48	2.38
	RCRD:	0.27	1.36	0.34	1.68	0.52	2.60	0.54	2.71 1.18	0.66	3.29
Funances Land	LTI:	0.21	1.04	0.17	0.84	0.15	0.75	0.24		0.34	1.69
European Land	DART:	0.24	1.22	0.19	0.97	0.18	0.89	0.30	1.50	0.39	1.94
	RCRD: LTI:	0.29 0.15	1.45 0.74	0.23	1.14 0.60	0.23	1.14 0.93	0.35	1.77 0.97	0.48	2.39 1.34
European Water	DART:	0.15	1.32	0.12	1.26	0.19	2.02	0.19	1.93	0.27	2.20
	RCRD:	0.48	2.41	0.50	2.52	0.63	3.17	0.03	3.64	0.85	4.24
	LTI:	0.10	0.71	0.00	0.56	0.39	1.95	0.32	1.59	0.38	1.92
Africa Land	DART:	0.25	1.23	0.20	1.01	0.94	4.71	0.86	4.28	0.86	4.32
	RCRD:	0.52	2.59	0.39	1.96	1.16	5.78	1.04	5.18	1.07	5.36
	LTI:	0.06	0.29	0.01	0.05	0.09	0.47	0.18	0.89	0.16	0.81
Africa Water	DART:	0.16	0.79	0.11	0.55	0.22	1.11	0.41	2.06	0.30	1.48
	RCRD:	0.29	1.43	0.20	0.99	0.34	1.72	0.65	3.26	0.52	2.61
	LTI:	0.09	0.44	0.13	0.64	0.14	0.69	0.14	0.68	0.14	0.72
Middle East Land	DART:	0.23	1.13	0.24	1.20	0.32	1.59	0.32	1.59	0.39	1.95
	RCRD:	0.38	1.89	0.49	2.44	0.60	2.98	0.54	2.70	0.65	3.23
	LTI:	0.06	0.30	0.05	0.27	0.10	0.48	0.08	0.42	0.08	0.39
Middle East Water	DART:	0.22	1.08	0.18	0.91	0.22	1.12	0.26	1.29	0.22	1.10
	RCRD:	0.34	1.70	0.26	1.30	0.31	1.55	0.35	1.74	0.29	1.47
	LTI:	0.02	0.10	0.07	0.33	0.11	0.53	0.24	1.18	0.22	1.08
Asia Pacific Land	DART:	0.06	0.29	0.11	0.55	0.19	0.93	0.31	1.53	0.58	2.89
	RCRD:	0.14	0.68	0.18	0.89	0.34	1.69	0.45	2.27	0.94	4.70
	LTI:	0.07	0.34	0.11	0.55	0.05	0.27	0.15	0.73	0.15	0.76
Asia Pacific Water	DART:	0.15	0.76	0.18	0.90	0.12	0.61	0.30	1.48	0.35	1.73
	RCRD:	0.22	1.12	0.30	1.51	0.23	1.17	0.40	2.02	0.54	2.72
	LTI:	0.18	0.90	0.00	0.00	0.15	0.75	0.23	1.17		
Australasia Land	DART:	0.36	1.80	0.48	2.40	0.23	1.13	0.70	3.50		stralasia
	RCRD:	0.54	2.70	0.48	2.40	0.53	2.63	1.37	6.83		orior to
Australasia Mater	LTI:	0.61	3.03	0.00	0.00	0.10	0.50	0.06	0.30		contact DC
Australasia Water	DART: RCRD:	0.91 1.52	4.55 7.58	0.16 0.48	0.79 2.38	0.45 0.55	2.25 2.75	0.43 0.61	2.13 3.05	IA IA	20
	LTI:		7.58 0.81		2.38 0.66	0.55			3.05 1.14	0.26	1.29
INDUSTRY	DART:	0.16 0.33	1.67	0.13 0.28	1.39	0.18	0.88 1.92	0.23	2.41	0.26	2.576
TOTALS	RCRD:	0.53	2.70	0.28	2.29			••••••	3.76	••••••	4.03
		0.34	2.70	0.40	2.29	0.60	3.02	0.75	3.70	0.81	4.03

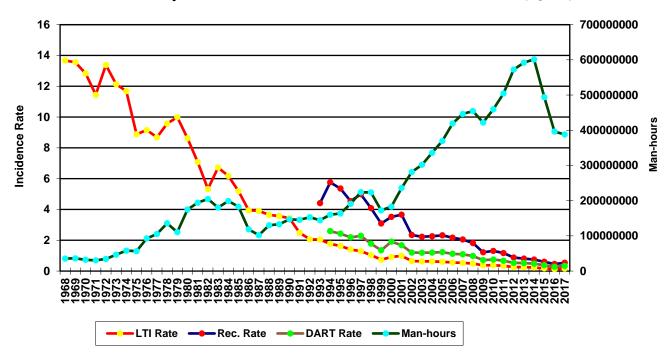


2017 - IADC INDUSTRY TOTALS (Table 3)

	LAND	WATER	COMBINED
TOTAL MANHOURS	235,430,927	152,559,209	387,990,136
TOTAL MEDICAL TREATMENT INCIDENTS	289	112	401
TOTAL RESTRICTED WORK INCIDENTS	240	93	333
TOTAL LOST TIME INCIDENTS	228	76	304
TOTAL FATALITIES	8	2	10
TOTAL RECORDABLES	765	283	1,048
MTO INCIDENCE RATE	0.25	0.15	0.21
RWC INCIDENCE RATE	0.20	0.12	0.17
LTI INCIDENCE RATE	0.20	0.10	0.16
LTI FREQUENCY RATE	1.00	0.51	0.81
DART INCIDENCE RATE	0.40	0.22	0.33
DART FREQUENCY RATE	2.02	1.12	1.667
RECORDABLE INCIDENCE RATE	0.65	0.37	0.54
RECORDABLE FREQUENCY RATE	3.25	1.86	2.70

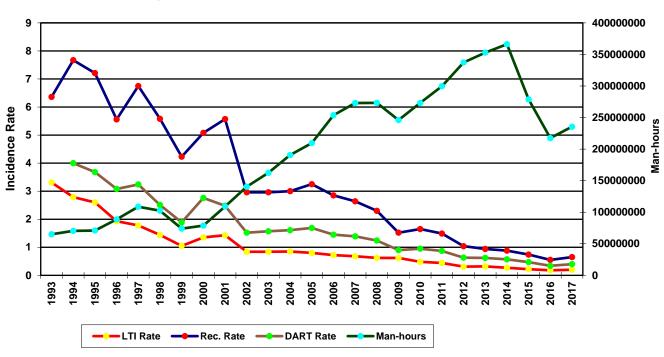
MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE - (LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE = (LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Number of participating companies: 94 - Total; 61 - Land; 50 - Water



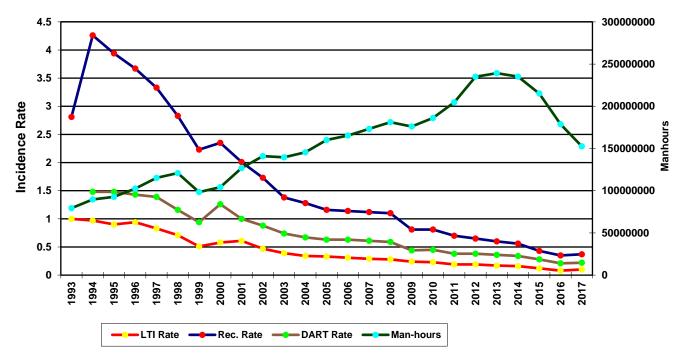
Total Industry LTI & Recordable Incidence Rates vs Man-hours (Figure 1)





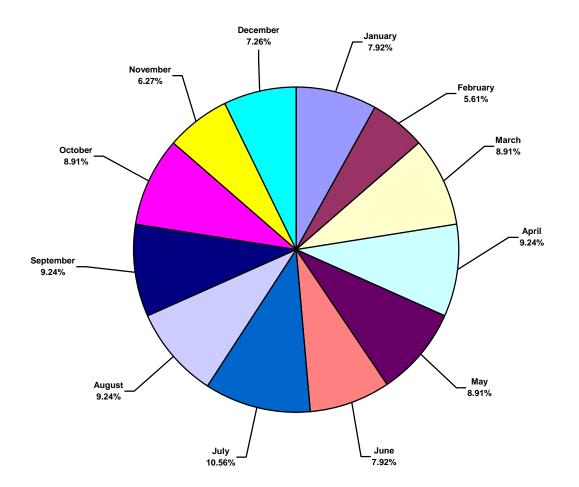
Total Industry Land LTI & Recordable Incidence Rates vs Man-hours (Figure 2)

Total Industry Water LTI & Recordable Incidence Rates vs Man-hours (Figure 3)



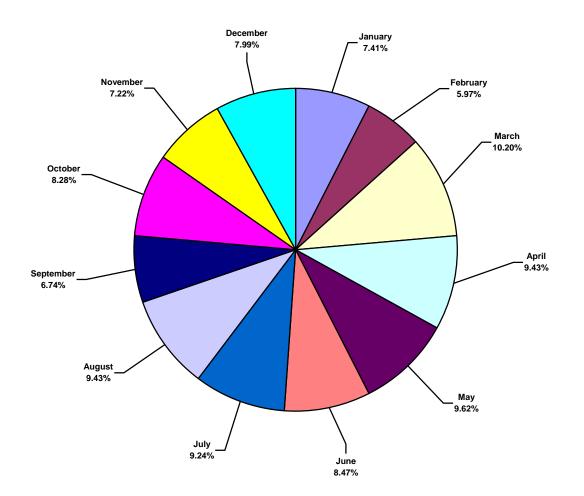


IADC 2017 Total Industry Charts Total Industry Lost Time Incidents by Month (Chart 1) Based on 303 Incidents

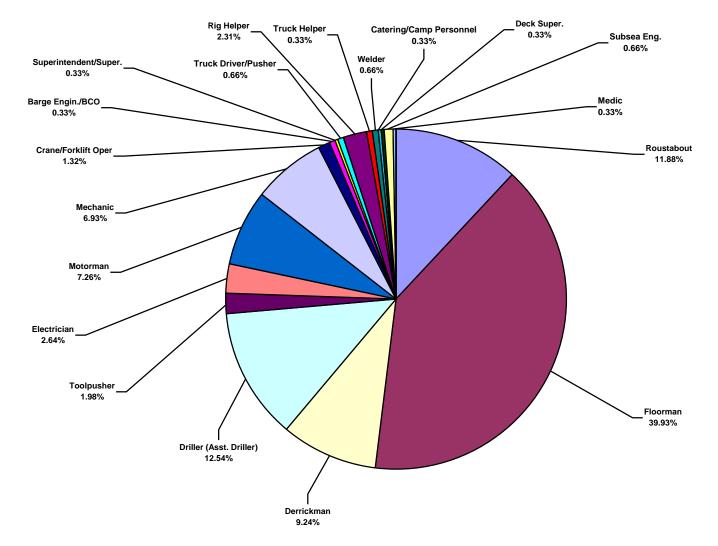




Total Industry Recordable Incidents by Month (Chart 2) Based on 1039 Incidents Note: Some pie charts may not appear to show all the slices due to the small percentage the slice represents.

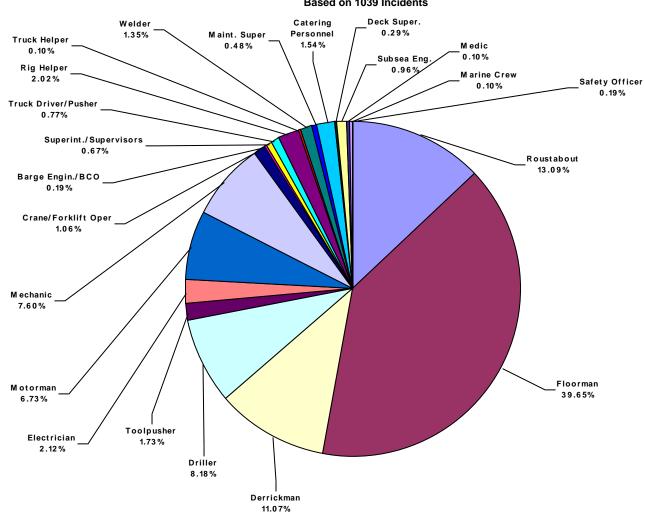






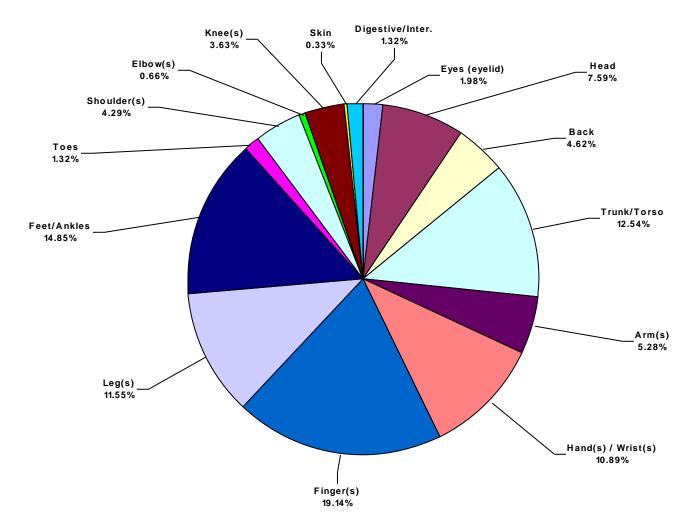
Total Industry Lost Time Incidents by Occupation (Chart 3) Based on 303 Incidents





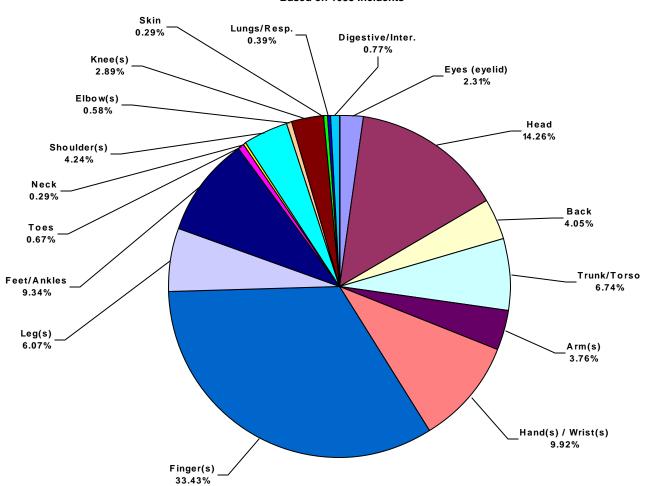
Total Industry Recordable Incidents by Occupation (Chart 4) Based on 1039 Incidents





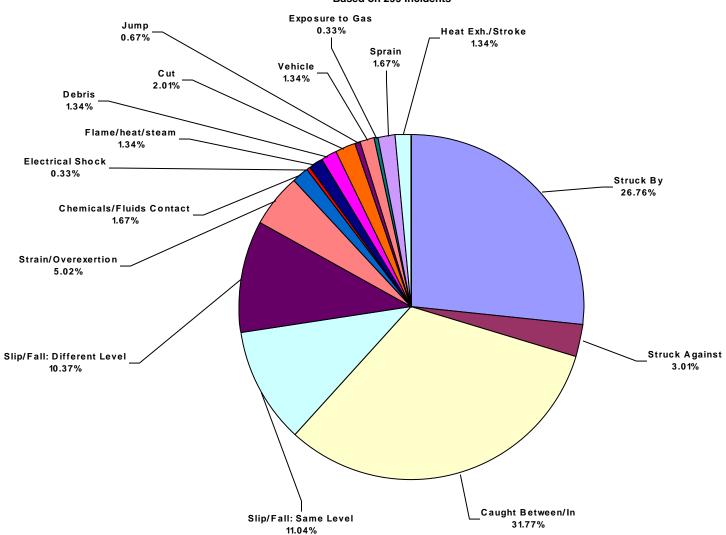
Total Industry Lost Time Incidents by Body Part (Chart 5) Based on 303 Incidents





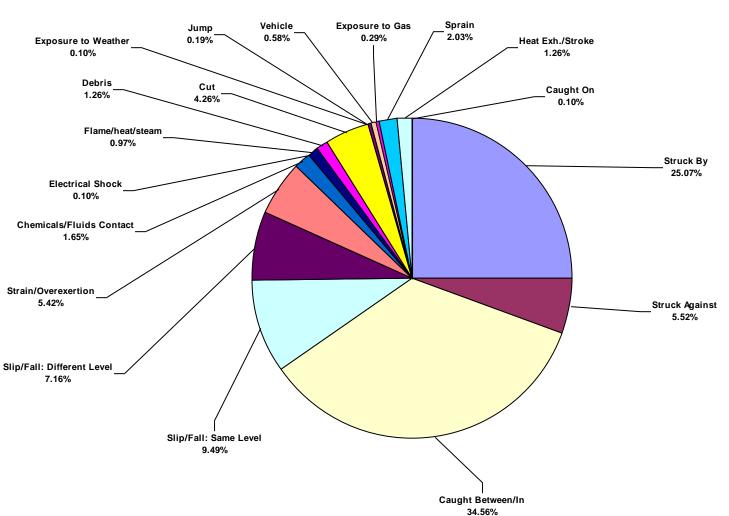
Total Industry Recordable Incidents by Body Part (Chart 6) Based on 1038 Incidents





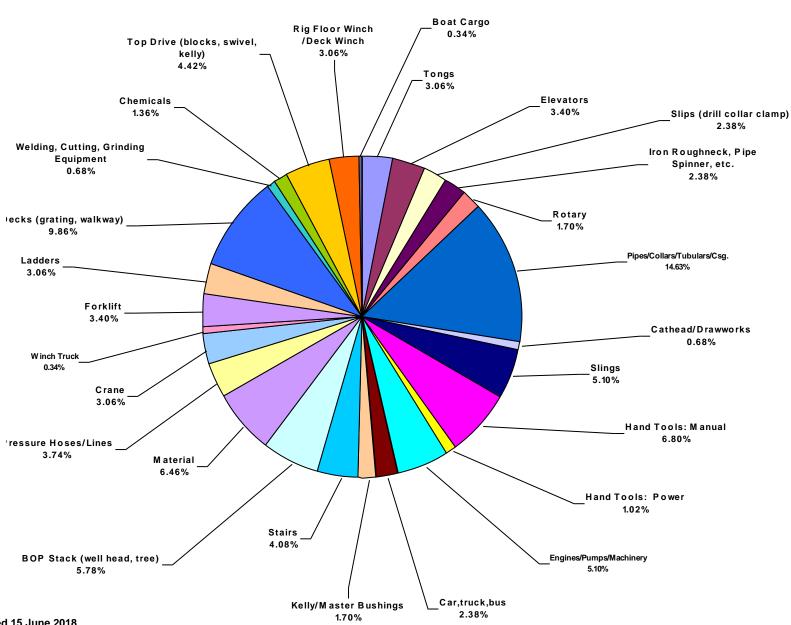
Total Industry Lost Time Incidents by Incident Type (Chart 7) Based on 299 Incidents





Total Industry Recordable Incidents by Incident Type (Chart 8) Based on 1033 Incidents



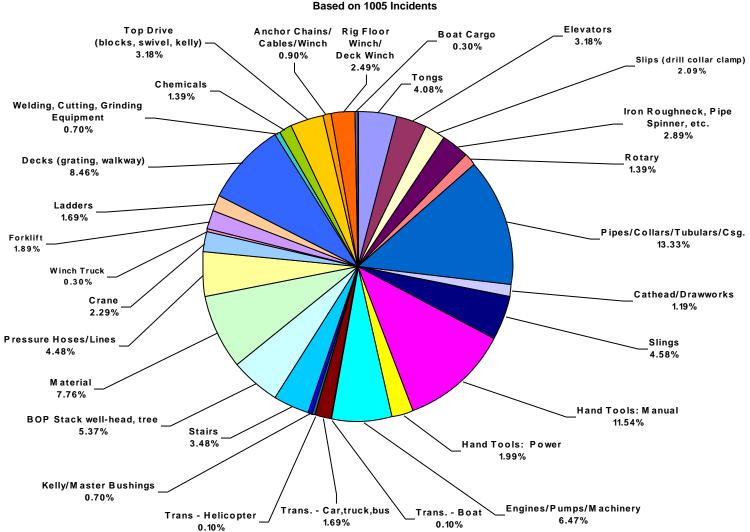


Total Industry Lost Time Incidents by Equipment (Chart 9) Based on 294 Incidents

Issued 15 June 2018

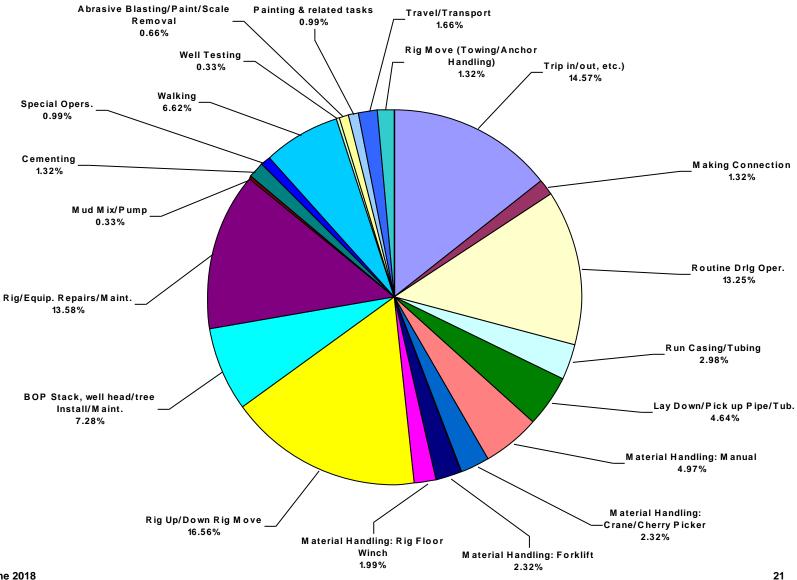
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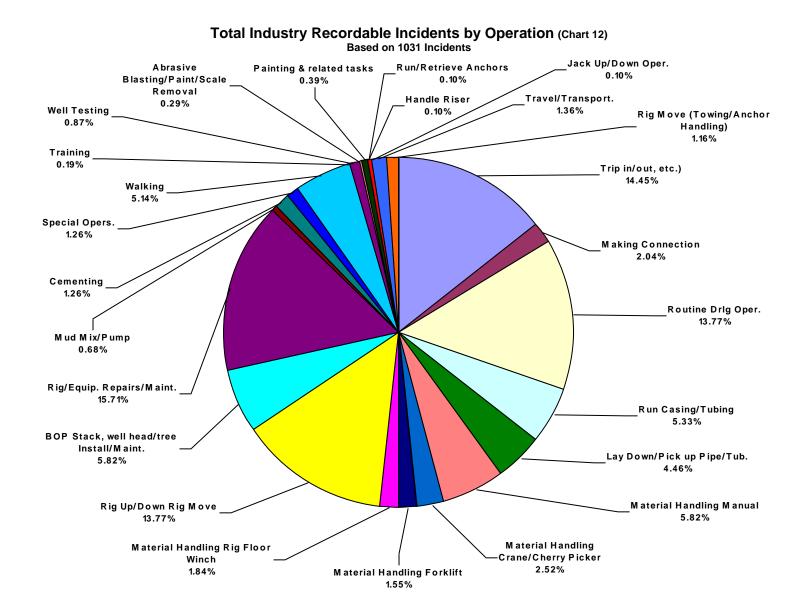


Total Industry Lost Time Incidents by Operation (Chart 11) Based on 302 Incidents

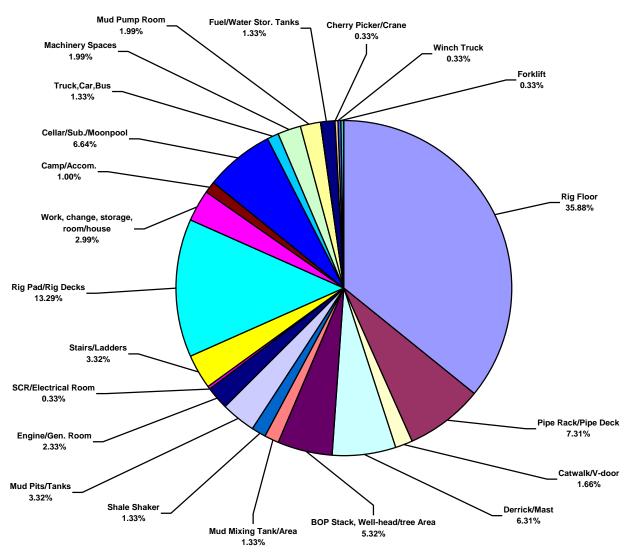


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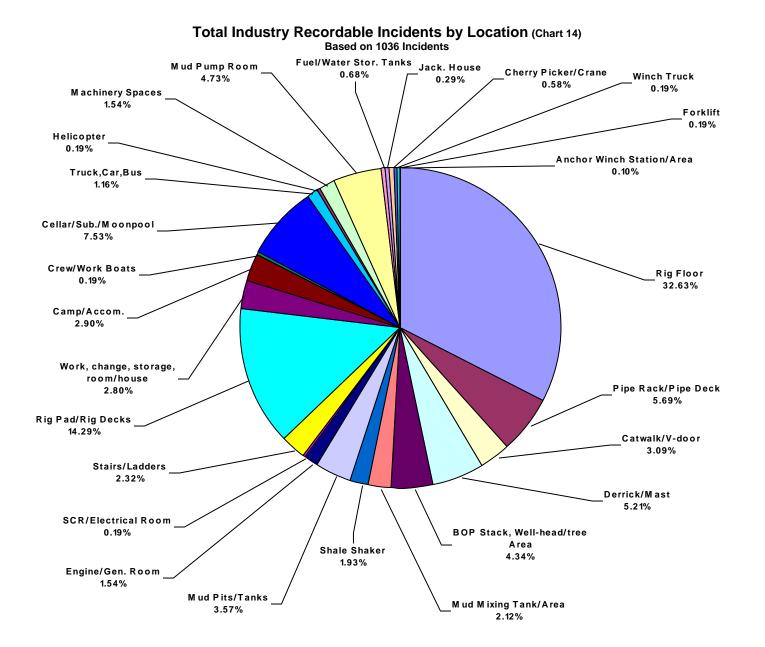






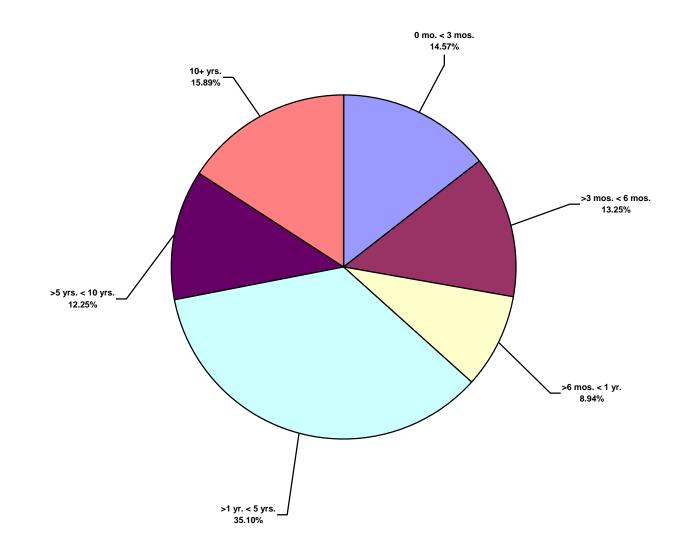
Total Industry Lost Time Incidents by Location (Chart 13) Based on 301 Incidents







Total Industry Lost Time Incidents by Time in Service (Chart 15) Based on 302 Incidents



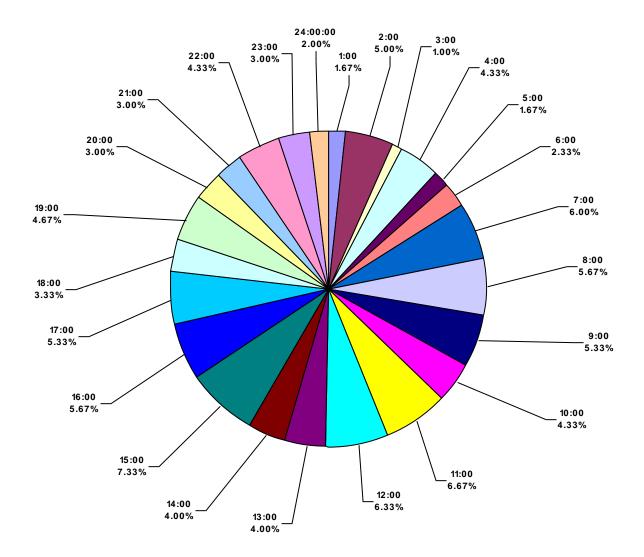


10+yrs. 11.83% 0 mo. < 3 mos. 15.13% >3 mos. < 6 mos. 11.06% >5 yrs. < 10 yrs. 15.32% >6 mos. < 1 yr. 12.32% >1 yr. < 5 yrs. 34.34%

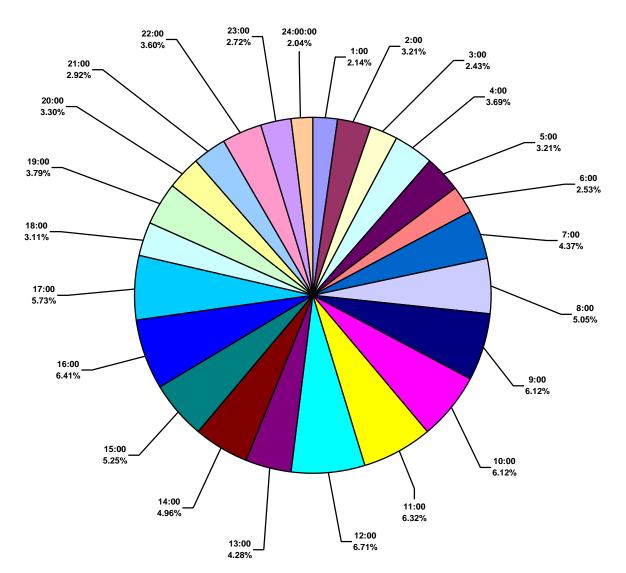
Total Industry Recordable Incidents by Time in Service (Chart 16) Based on 1031 Incidents



Total Industry Lost Time Incidents by Time of Day (Chart 17) Based on 300 Incidents

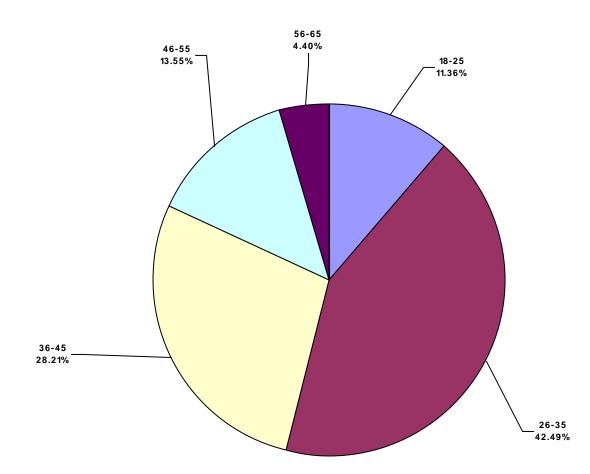






Total Industry Recordable Incidents by Time of Day (Chart 18) Based on 1029 Incidents





Total Industry Lost Time Incidents by Age (Chart 19) Based on 273 Incidents



66 & Above 56-65 0.23% 2.82% 46-55 10.92% 18-25 14.64% 36-45 26.13% 26-35 45.27%

Total Industry Recordable Incidents by Age (Chart 20) Based on 888 Incidents

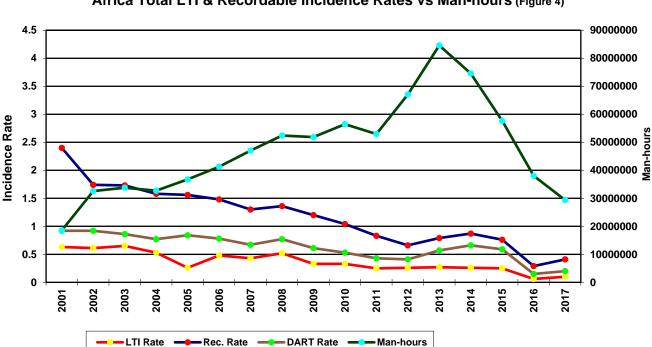


2017 ISP Program Regional Totals Combined Land & Water IADC 2017 Africa Totals (Table 4)

	LAND	WATER	COMBINED
TOTAL MANHOURS	15,447,105	13,944,560	29,391,665
TOTAL MEDICAL TREATMENT INCIDENTS	21	9	30
TOTAL RESTRICTED WORK INCIDENTS	8	7	15
TOTAL LOST TIME INCIDENTS	11	4	15
TOTAL FATALITIES	0	0	0
TOTAL RECORDABLES	40	20	60
MTO INCIDENCE RATE	0.27	0.13	0.20
RWC INCIDENCE RATE	0.10	0.10	0.10
LTI INCIDENCE RATE	0.14	0.06	0.10
LTI FREQUENCY RATE	0.71	0.29	0.51
DART INCIDENCE RATE	0.25	0.16	0.20
DART FREQUENCY RATE	1.23	0.79	1.02
RECORDABLE INCIDENCE RATE	0.52	0.29	0.41
RECORDABLE FREQUENCY RATE	2.59	1.43	2.04

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE -(LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE =(LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 11 Water – 17



Africa Total LTI & Recordable Incidence Rates vs Man-hours (Figure 4)

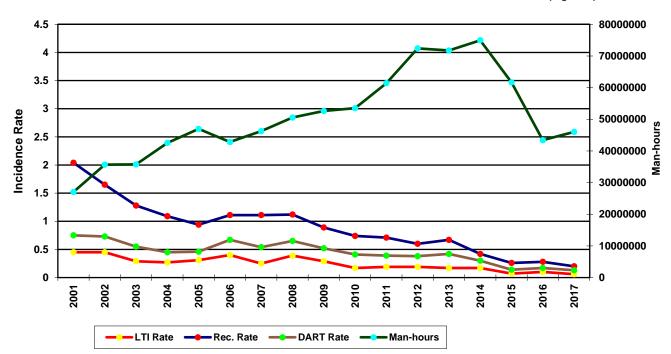


IADC 2017 Asia Pacific Totals (Table 5)

	LAND	WATER	COMBINED
TOTAL MANHOURS	10,325,025	35,689,082	46,014,107
TOTAL MEDICAL TREATMENT INCIDENTS	4	13	17
TOTAL RESTRICTED WORK INCIDENTS	2	15	17
TOTAL LOST TIME INCIDENTS	1	12	13
TOTAL FATALITIES	0	0	0
TOTAL RECORDABLES	7	40	47
MTO INCIDENCE RATE	0.08	0.07	0.07
RWC INCIDENCE RATE	0.04	0.08	0.07
LTI INCIDENCE RATE	0.02	0.07	0.06
LTI FREQUENCY RATE	0.10	0.34	0.28
DART INCIDENCE RATE	0.06	0.15	0.13
DART FREQUENCY RATE	0.29	0.76	0.65
RECORDABLE INCIDENCE RATE	0.14	0.22	0.20
RECORDABLE FREQUENCY RATE	0.68	1.12	1.02

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE -(LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE =(LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 10 Water – 30



Asia Pacific Total LTI & Recordable Incidence Rates vs Man-hours (Figure 5)

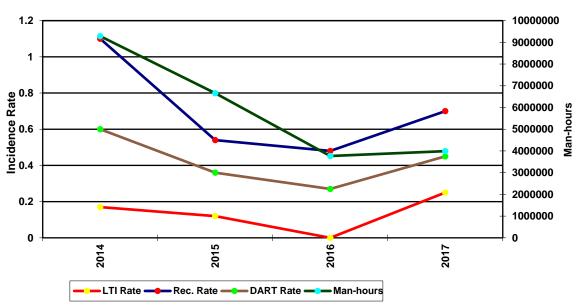


IADC 2017 Australasia Totals (Table 6)

	LAND	WATER	COMBINED
TOTAL MANHOURS	3,331,859	659,482	3,991,341
TOTAL MEDICAL TREATMENT INCIDENTS	3	2	5
TOTAL RESTRICTED WORK INCIDENTS	3	1	4
TOTAL LOST TIME INCIDENTS	3	2	5
TOTAL FATALITIES	0	0	0
TOTAL RECORDABLES	9	5	14
MTO INCIDENCE RATE	0.18	0.61	0.25
RWC INCIDENCE RATE	0.18	0.30	0.20
LTI INCIDENCE RATE	0.18	0.61	0.25
LTI FREQUENCY RATE	0.90	3.03	1.25
DART INCIDENCE RATE	0.36	0.91	0.45
DART FREQUENCY RATE	1.80	4.55	2.25
RECORDABLE INCIDENCE RATE	0.54	1.52	0.70
RECORDABLE FREQUENCY RATE	2.70	7.58	3.51

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE - (LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE = (LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 7; Water – 5



Australasia Total LTI & Recordable Incidence Rates vs Man-hours (Figure 6)

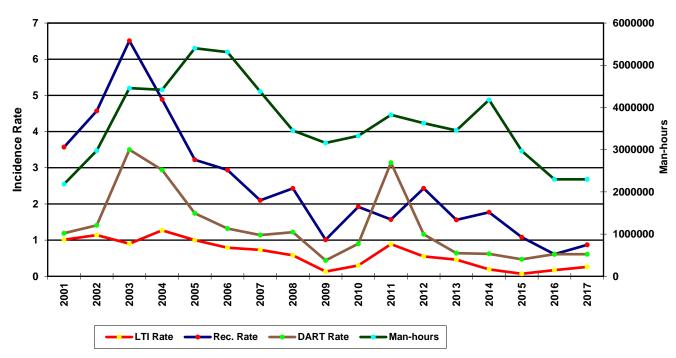


IADC 2017 Canada Totals (Table 7)

	LAND	WATER	COMBINED
TOTAL MANHOURS	1,016,078	1,280,874	2,296,952
TOTAL MEDICAL TREATMENT INCIDENTS	2	1	3
TOTAL RESTRICTED WORK INCIDENTS	2	2	4
TOTAL LOST TIME INCIDENTS	2	1	3
TOTAL FATALITIES	0	0	0
TOTAL RECORDABLES	6	4	10
MTO INCIDENCE RATE	0.39	0.16	0.26
RWC INCIDENCE RATE	0.39	0.31	0.35
LTI INCIDENCE RATE	0.39	0.16	0.26
LTI FREQUENCY RATE	1.97	0.78	1.31
DART INCIDENCE RATE	0.79	0.47	0.61
DART FREQUENCY RATE	3.94	2.34	3.05
RECORDABLE INCIDENCE RATE	1.18	0.62	0.87
RECORDABLE FREQUENCY RATE	5.91	3.12	4.35

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE -(LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE =(LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 3 Water – 5



Canada Total LTI & Recordable Incidence Rates vs Man-hours (Figure 7)



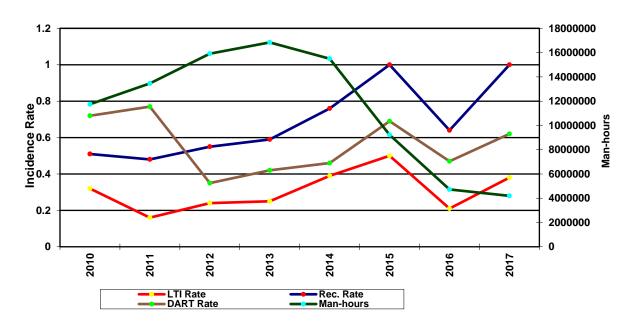
IADC 2017 Central America	& Caribbean Totals (Table 8)
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	LAND	WATER	COMBINED
TOTAL MANHOURS	400,688	3,796,094	4,196,782
TOTAL MEDICAL TREATMENT INCIDENTS	0	8	8
TOTAL RESTRICTED WORK INCIDENTS	0	5	5
TOTAL LOST TIME INCIDENTS	1	7	8
TOTAL FATALITIES	0	0	0
TOTAL RECORDABLES	1	20	21
MTO INCIDENCE RATE	0.00	0.42	0.38
RWC INCIDENCE RATE	0.00	0.26	0.24
LTI INCIDENCE RATE	0.50	0.37	0.38
LTI FREQUENCY RATE	2.50	1.84	1.91
DART INCIDENCE RATE	0.50	0.63	0.62
DART FREQUENCY RATE	2.50	3.16	3.10
RECORDABLE INCIDENCE RATE	0.50	1.05	1.00
RECORDABLE FREQUENCY RATE	2.50	5.27	5.00

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE -(LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE =(LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 6 Water – 10

Central America & Caribbean Total LTI & Recordable Incidence Rates vs Man-hours (Figure 8)



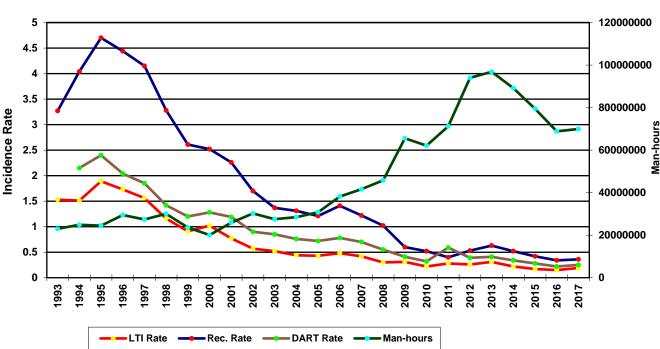


IADC 2017 European Totals (Table 9)

	LAND	WATER	COMBINED
TOTAL MANHOURS	44,274,793	25,681,274	69,956,067
TOTAL MEDICAL TREATMENT INCIDENTS	10	28	38
TOTAL RESTRICTED WORK INCIDENTS	8	15	23
TOTAL LOST TIME INCIDENTS	43	18	61
TOTAL FATALITIES	3	1	4
TOTAL RECORDABLES	64	62	126
MTO INCIDENCE RATE	0.05	0.22	0.11
RWC INCIDENCE RATE	0.04	0.12	0.07
LTI INCIDENCE RATE	0.21	0.15	0.19
LTI FREQUENCY RATE	1.04	0.74	0.93
DART INCIDENCE RATE	0.24	0.26	0.25
DART FREQUENCY RATE	1.22	1.32	1.26
RECORDABLE INCIDENCE RATE	0.29	0.48	0.36
RECORDABLE FREQUENCY RATE	1.45	2.41	1.80

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE -(LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE =(LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 12 Water – 20



European Total LTI & Recordable Incidence Rates vs Man-hours (Figure 9)

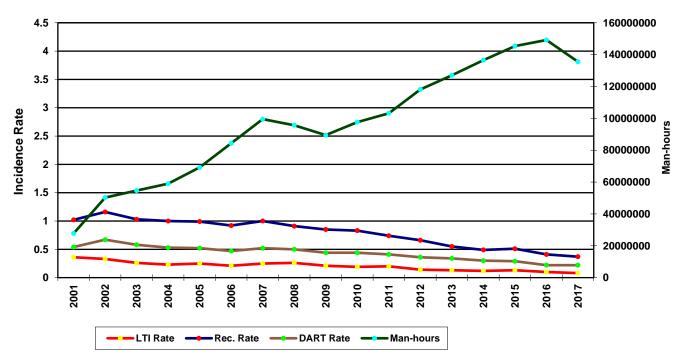


IADC 2017 Middle East Totals (Table 10)

	LAND	WATER	COMBINED
TOTAL MANHOURS	95,628,447	39,906,727	135,535,174
TOTAL MEDICAL TREATMENT INCIDENTS	73	25	98
TOTAL RESTRICTED WORK INCIDENTS	66	31	97
TOTAL LOST TIME INCIDENTS	38	12	50
TOTAL FATALITIES	4	0	4
TOTAL RECORDABLES	181	68	249
MTO INCIDENCE RATE	0.15	0.13	0.14
RWC INCIDENCE RATE	0.14	0.16	0.14
LTI INCIDENCE RATE	0.09	0.06	0.08
LTI FREQUENCY RATE	0.44	0.30	0.40
DART INCIDENCE RATE	0.23	0.22	0.22
DART FREQUENCY RATE	1.13	1.08	1.11
RECORDABLE INCIDENCE RATE	0.38	0.34	0.37
RECORDABLE FREQUENCY RATE	1.89	1.70	1.84

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE - (LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE = (LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Middle East Total LTI & Recordable Incidence Rates vs Man-hours (Figure 10)



Companies Reporting: Land – 21 Water – 19



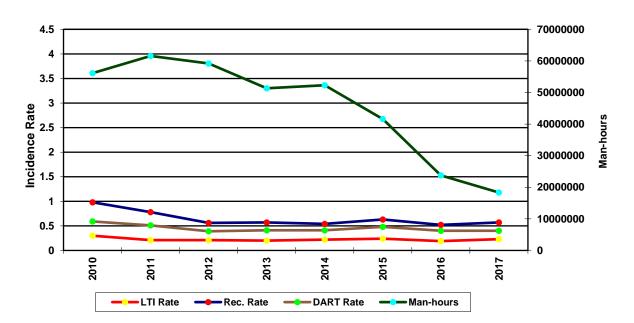
IADC 2017 South American Totals (Table 11)

	LAND	WATER	COMBINED
TOTAL MANHOURS	9,518,345	8,824,098	18,342,443
TOTAL MEDICAL TREATMENT INCIDENTS	12	3	15
TOTAL RESTRICTED WORK INCIDENTS	16	0	16
TOTAL LOST TIME INCIDENTS	12	9	21
TOTAL FATALITIES	0	0	0
TOTAL RECORDABLES	40	12	52
MTO INCIDENCE RATE	0.25	0.07	0.16
RWC INCIDENCE RATE	0.34	0.00	0.17
LTI INCIDENCE RATE	0.25	0.20	0.23
LTI FREQUENCY RATE	1.26	1.02	1.14
DART INCIDENCE RATE	0.59	0.20	0.40
DART FREQUENCY RATE	2.94	1.02	2.02
RECORDABLE INCIDENCE RATE	0.84	0.27	0.57
RECORDABLE FREQUENCY RATE	4.20	1.36	2.83

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE -(LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE =(LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land – 8 Water – 11

South America Total LTI & Recordable Incidence Rates vs Man-hours (Figure 11)





IADC 2017 US Totals (Table 12)

	LAND	WATER	COMBINED
TOTAL MANHOURS	55,488,587	22,777,018	78,265,605
TOTAL MEDICAL TREATMENT INCIDENTS	164	23	187
TOTAL RESTRICTED WORK INCIDENTS	135	17	152
TOTAL LOST TIME INCIDENTS	117	11	128
TOTAL FATALITIES	1	1	2
TOTAL RECORDABLES	417	52	469
MTO INCIDENCE RATE	0.59	0.20	0.48
RWC INCIDENCE RATE	0.49	0.15	0.39
LTI INCIDENCE RATE	0.43	0.11	0.33
LTI FREQUENCY RATE	2.13	0.53	1.66
DART INCIDENCE RATE	0.91	0.25	0.72
DART FREQUENCY RATE	4.56	1.27	3.60
RECORDABLE INCIDENCE RATE	1.50	0.46	1.20
RECORDABLE FREQUENCY RATE	7.52	2.28	5.99

MEDICAL TREATMENT INCIDENCE RATE = MTOS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) RESTRICTED WORK INCIDENCE RATE = RWCS X 200,000 / MAN-HOURS (LTIS NOT INCLUDED) LOST TIME INCIDENCE RATE - (LTIS+FTLS) X 200,000 / MAN-HOURS LOST TIME FREQUENCY RATE = (LTIS+FTLS) X 1,000,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 200,000 / MAN-HOURS DART INCIDENCE RATE - (LTIS+FTLS+RWCS) X 1,000,000 / MAN-HOURS RECORDABLE INCIDENCE RATE = RECORDABLES X 200,000 / MAN-HOURS RECORDABLE FREQUENCY RATE = RECORDABLES X 1,000,000 / MAN-HOURS

Companies Reporting: Land - 29; Water - 14

Incidence Rate Man-hours LTI Rate

US Total LTI & Recordable Incidence Rates vs Man-hours (Figure 12)