

North Texas STEPS Meeting

March 17th, 2017

2012 – 2015 Incidents and Citations in the Upstream Oil and Gas Industry

Kenny Jordan
kjordan@aesc.net

Association of Energy Service Companies

- Formed in 1956 on the premise of too much regulations, insurance rates high, safety in the oilfield
 - 19 Chapters throughout the U.S., 13 Standing Committees
 - Safety Statistics Tracking Program for Industry on the Well Servicing Side
 - Publish Recommended Practices for Oil and Gas Well Servicing, Hot Oiler Operations
 - Approx. 600 member companies
-

Background

- Boom in upstream O&G with discovery of shale oil and increased use of HF technology in early 2000s.
 - Drilling rig activity up 71% from 2003 to 2013.¹
- Talk of potential energy independence.
- More jobs but more inexperienced hands, workforce doubles from 2003 to 2013.¹
- More wells, longer vertical sections, more frac stages, more simultaneous services...
- >40% of fatalities in transportation incidents.

¹ From ISHN, September 1, 2015.

Background

- New technologies emerge and develop.
 - More drilling, well servicing, and facilities (gathering systems, pipelines, etc.) during that period (even with a downturn in 2009).
 - Result has been more incidents, injuries and fatalities in the oil patch.
 - Industry is about to go through another hiring cycle.
-

Increased OSHA Attention

- Fatalities up 27.6% from 2003 to 2013.¹
- Oil patch fatality rate at 7 times the national average.²
 - ~ 25/100,000 versus ~3.5/100,000 general industry.
- Formation of the STEPS Network in 2003.
 - South Texas industry and OSHA alliance originally to national now.
- Increased enforcement, publications, stand-downs, news reports, etc.

¹ From ISHN publication, September 1, 2015.

² From OSHA data September 13, 2012.

2012-2015 OSHA Data

- Split into three major NAICS codes:
 - 211111, Crude petroleum and natural gas extraction.
 - 213111, Drilling oil and gas wells.
 - 213112, Support activities for oil and gas operations.
 - Reviewed for accuracy by personnel familiar with the oil patch.
 - Includes both incidents, fatalities, and 29 CFR 1910 citations. 5(a)(1)s still being worked.
-

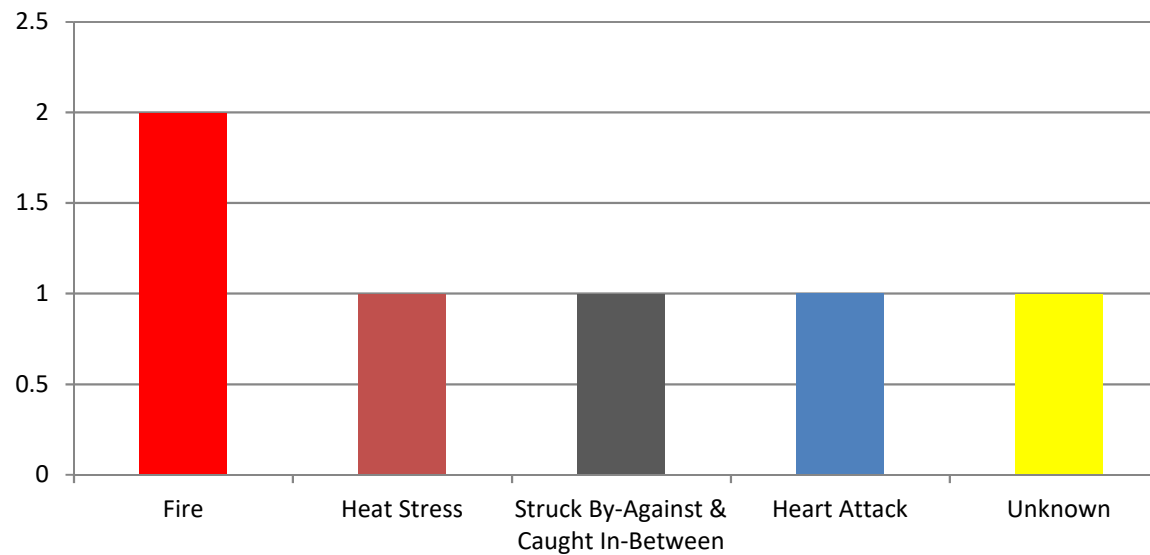
2012-2015 OSHA Data

NAICS 211111

- Production-related incidents.
 - 6 incidents.
 - 8 fatalities.
 - 2 fire incidents with four fatalities.
 - 1 struck by/caught in with one fatality.
 - 1 heat stress with one fatality.
 - 1 heart attack while inspecting a gas well.
 - 1 unknown (found in company man trailer).
-

2012-2015 OSHA Data

**NAICS 211111 Number of Incidents
(6 Total)**

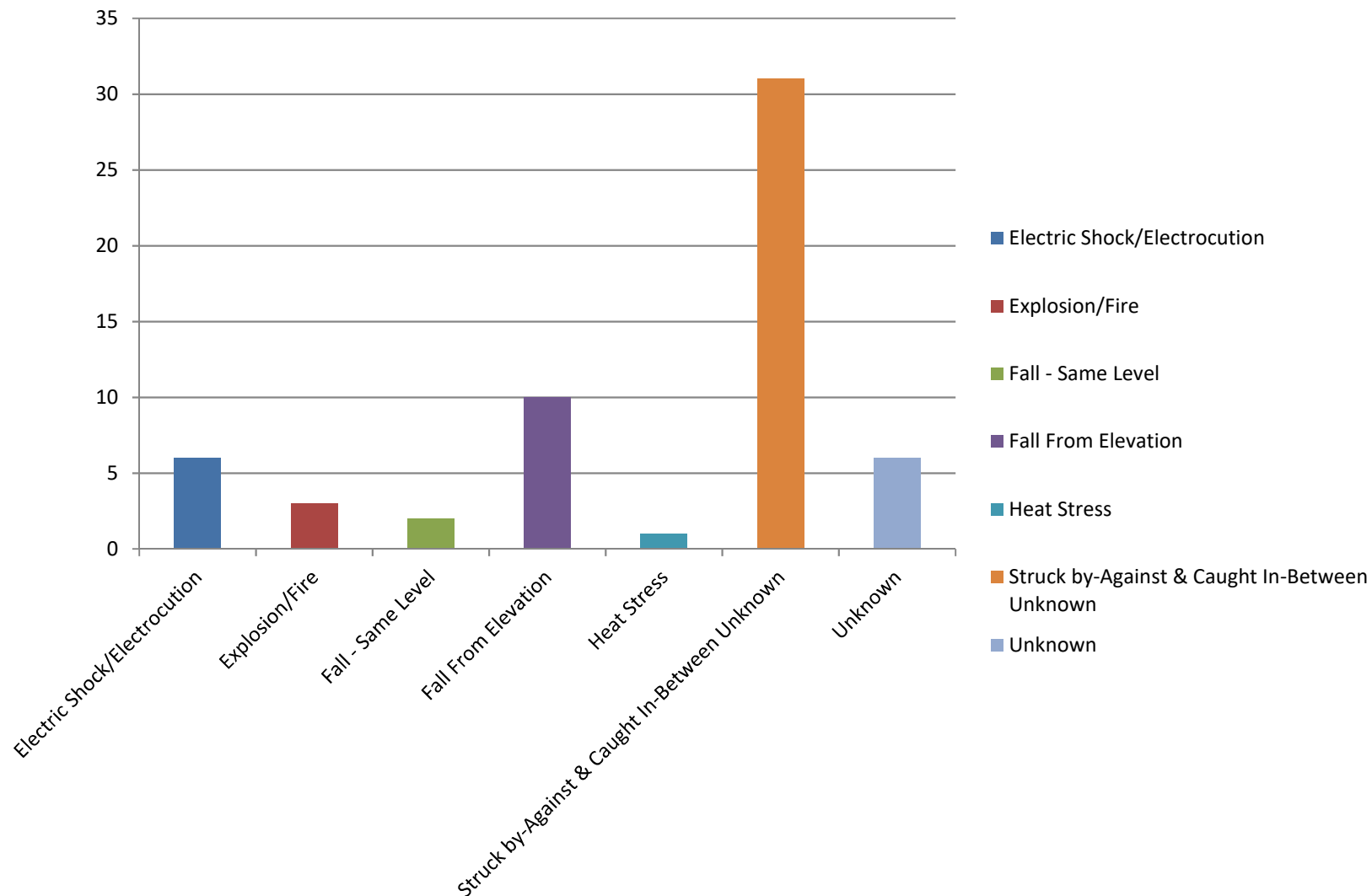


2012-2015 OSHA Data

NAICS 213111

- Drilling-related incidents.
 - 59 incidents.
 - 61 fatalities plus 9 hospitalizations.
 - 31 struck-by/caught-in with 31 fatalities.
 - 12 falls with 12 fatalities.
 - 6 electrocutions with seven fatalities.
 - 3 fires with four fatalities.
 - 1 heat stress with one fatality.
 - 6 unknown/natural causes.
-

NAISC 21311 Number of Incidents (59 Total)



2012-2015 OSHA Data

NAICS 213112

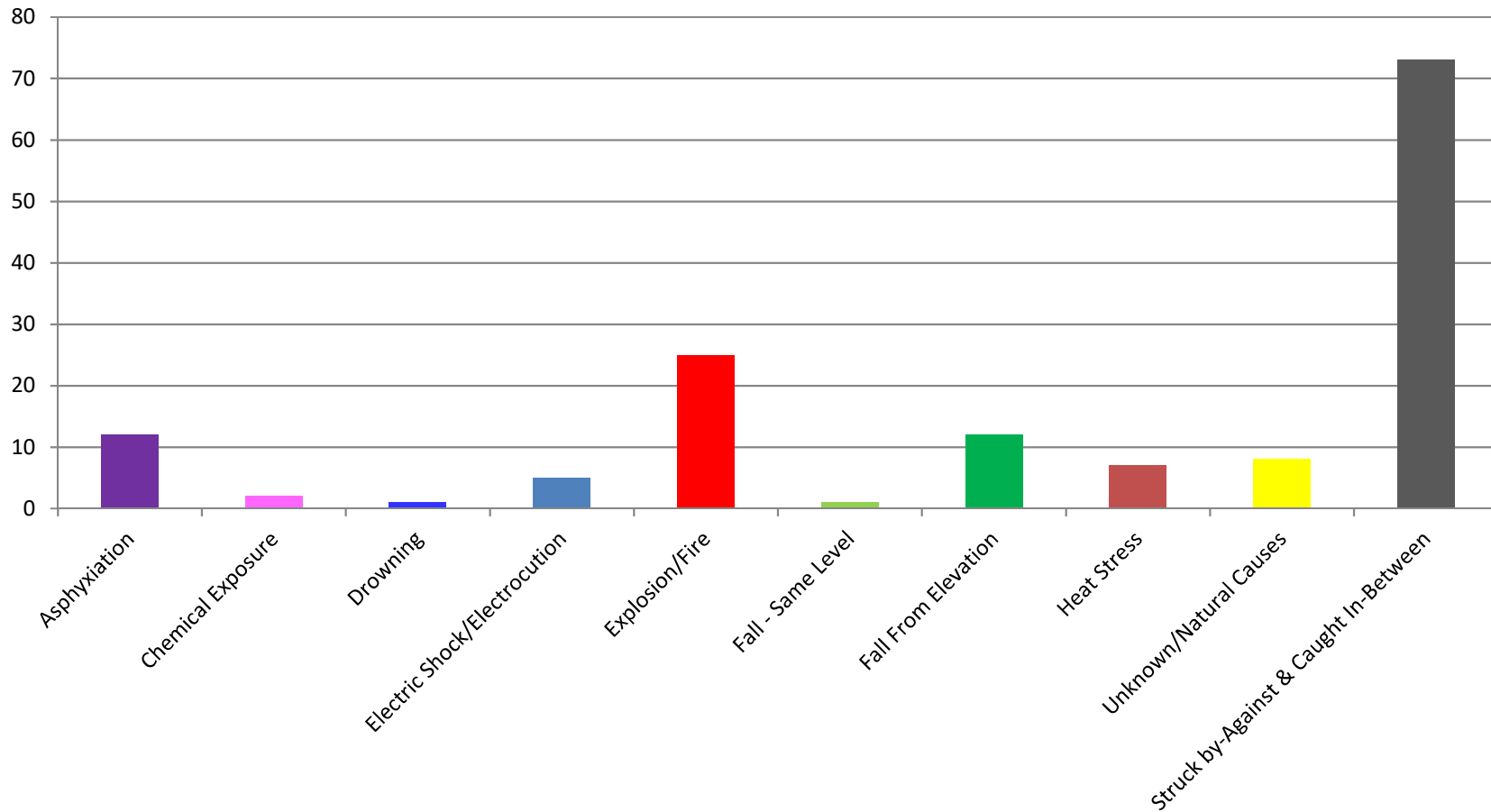
- Support-related incidents.
 - 146 incidents.
 - 147 fatalities plus 50 hospitalizations.
 - 73 struck-by/caught-in with 73 fatalities.
 - 25 fires/explosions with 27 fatalities.
 - 13 falls with 13 fatalities.
 - 12 asphyxiations with 12 fatalities.
 - 7 heat stress with 7 fatalities.
 - 5 electrocutions with 4 fatalities.
-

2012-2015 OSHA Data NAICS 213112 (Cont.)

- 2 chemical exposures with 2 fatalities.
 - 1 drowning.
 - 8 unknown/natural causes.
-

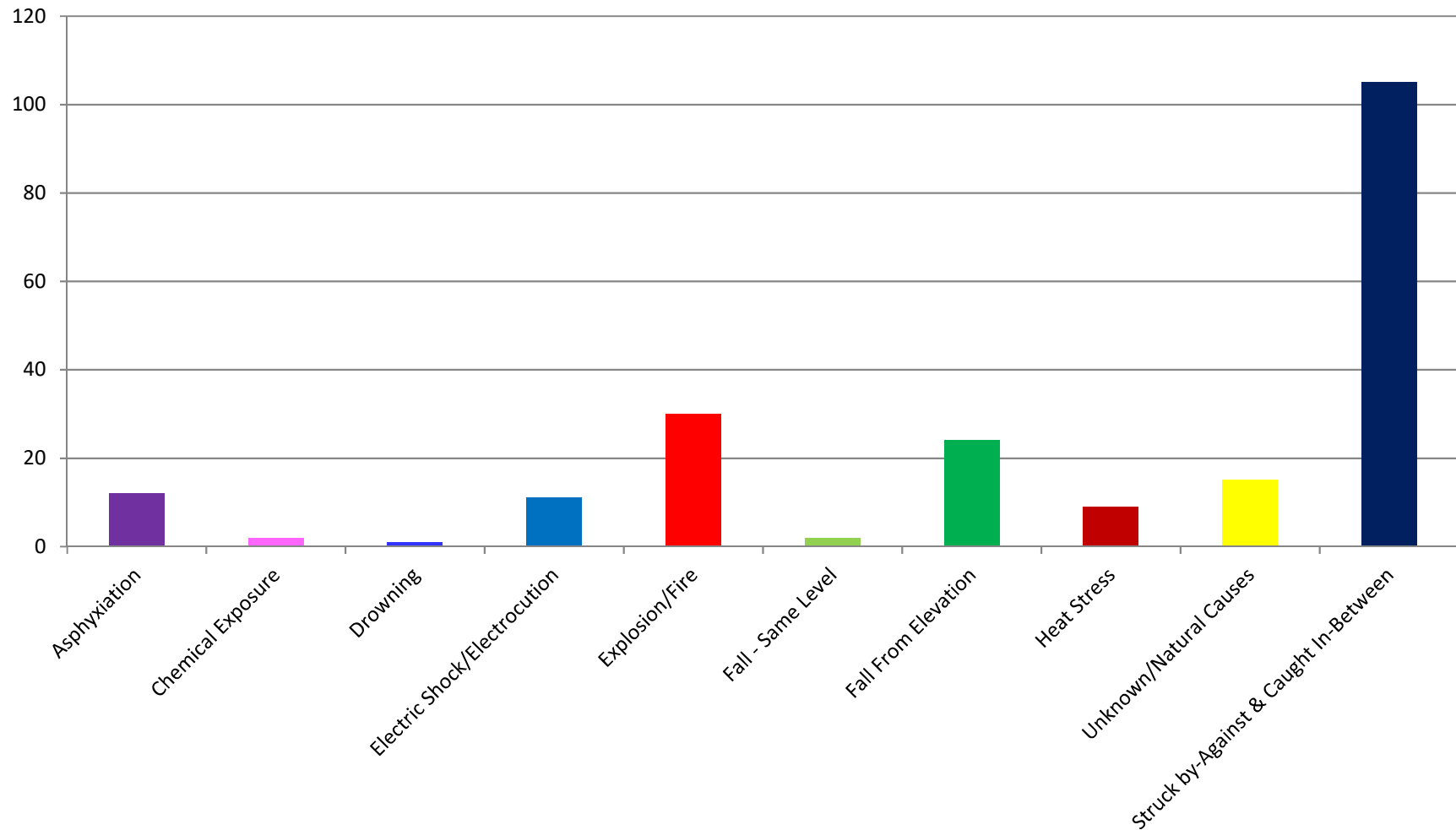
2012-2015 OSHA Data

NAICS 213112 Number of Incidents (146 Total)



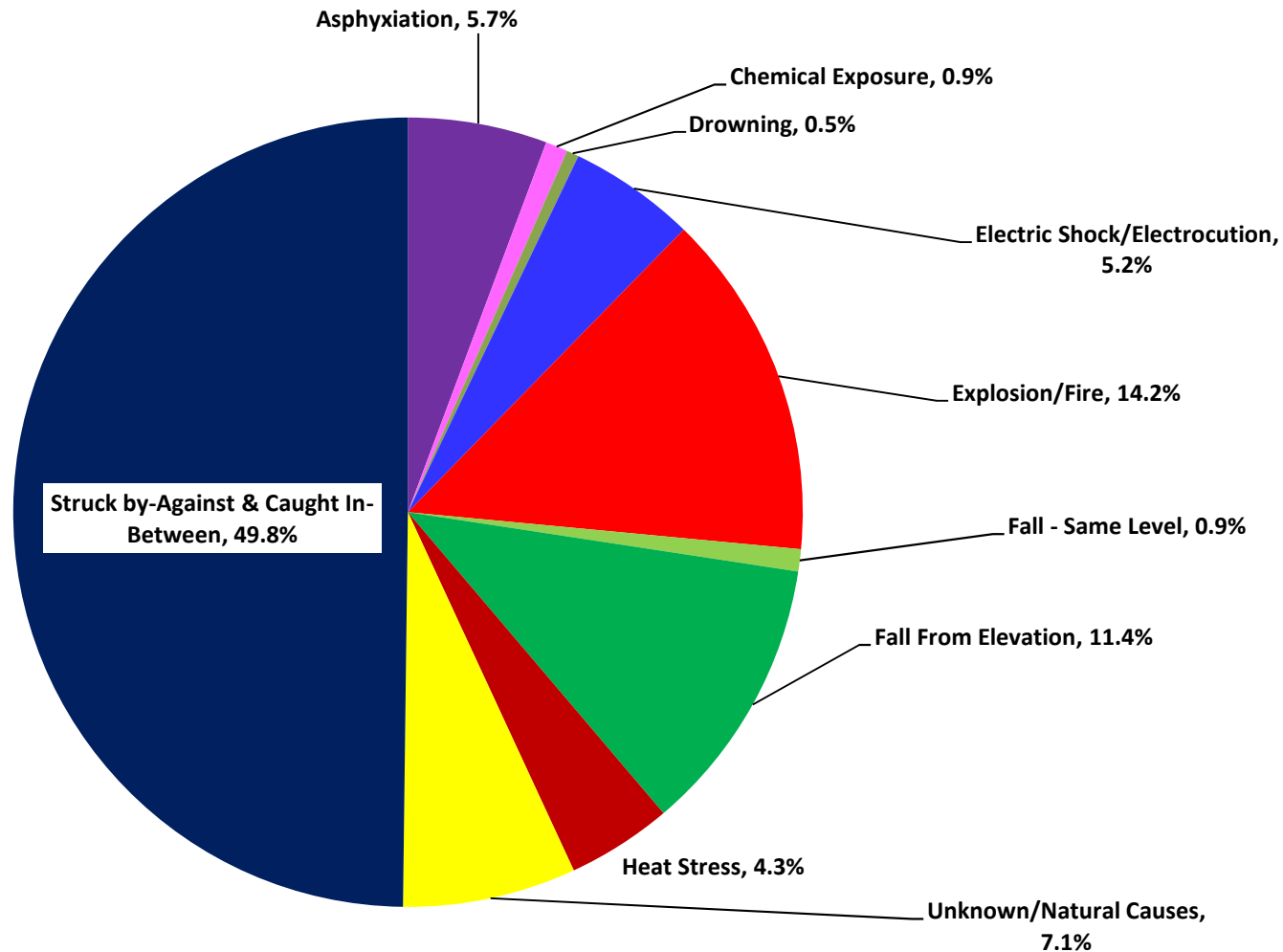
2012-2015 OSHA Data

NAICS 211111, 213111 and 213112 Incidents (211 Total)



2012-2015 OSHA Data

NAICS 211111, 213111 and 213112 Incidents (211 Total)



2012-2015 OSHA Data

29 CFR 1910 Citations

- 1071 Inspections.
 - 3078 Citations. 1353 Serious. (44%)
 - 567 Electrical (1910.303-.334).
 - 359 Handrails (1910.24).
 - 336 PPE (1910.132-.138).
 - 237 Hazcom (1910.1200).
 - 181 Machine guarding (1910.212-.219).
 - 136 Medical/First aid (1910.151).
-

AESC SAFETY STATISTICS – ACTUAL

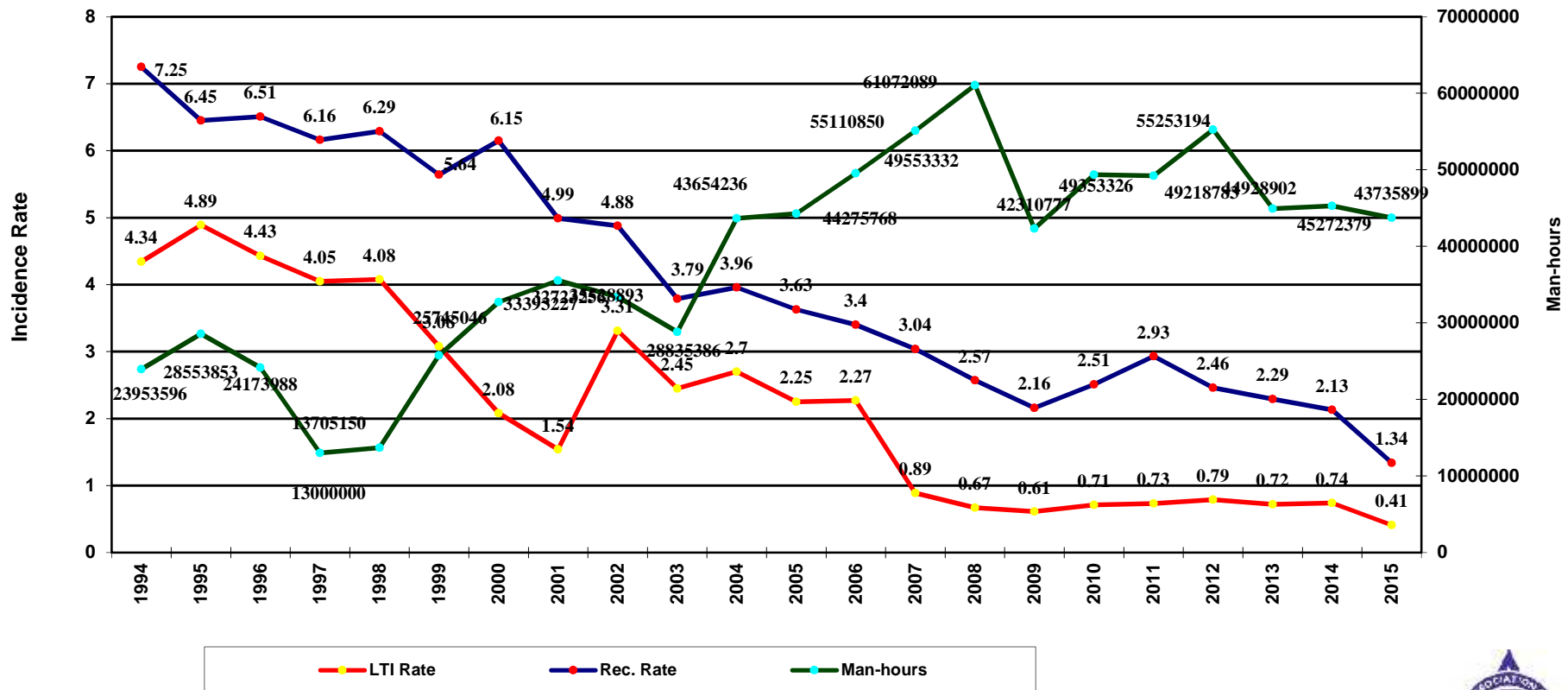
SAFETY STATISTICS SUMMARY 1994 - 2015			
YEAR	LTA FREQUENCIES	OSHA RECORDABLE FREQ	HOURS
1994	4.34	7.25	23,953,596
1995	4.89	6.45	28,553,853
1996	4.43	6.51	24,173,988
1997	4.05	6.16	13,000,000
1998	4.08	6.29	13,705,150
1999	3.08	5.64	27,745,046
2000	2.08	6.15	32,723,256
2001	1.54	4.99	35,528,893
2002	3.31	4.88	33,393,227
2003	2.45	3.79	38,835,386
2004	2.70	3.96	43,657,236
2005	2.25	3.63	44,275,768
2006	2.27	3.40	49,553,332
2007	0.89	3.04	55,110,850
2008	0.67	2.57	61,072,089
2009	0.61	2.16	42,310,777
2010	0.71	2.51	49,353,326
2011	0.73	2.93	49,218,783
2012	0.79	2.46	55,253,194
2013	0.72	2.29	44,928,902
2014	0.74	2.13	45,272,379
2015	0.41	1.34	43,735,899

AESC SAFETY STATISTICS – 2016

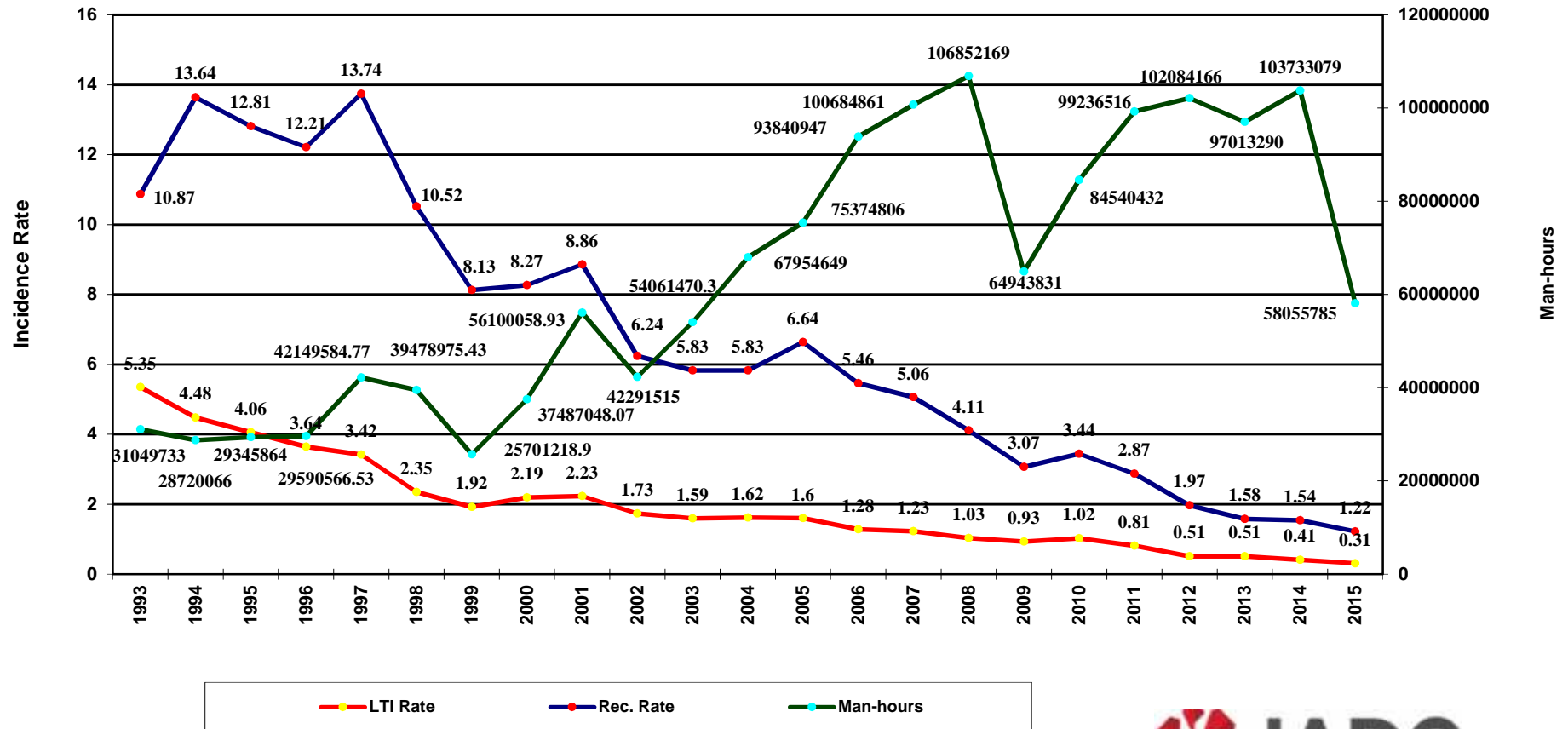
YEAR	LTA FREQUENCIES	OSHA RECORDABLE FREQ	HOURS
2016	0.37	1.26	35,673,108



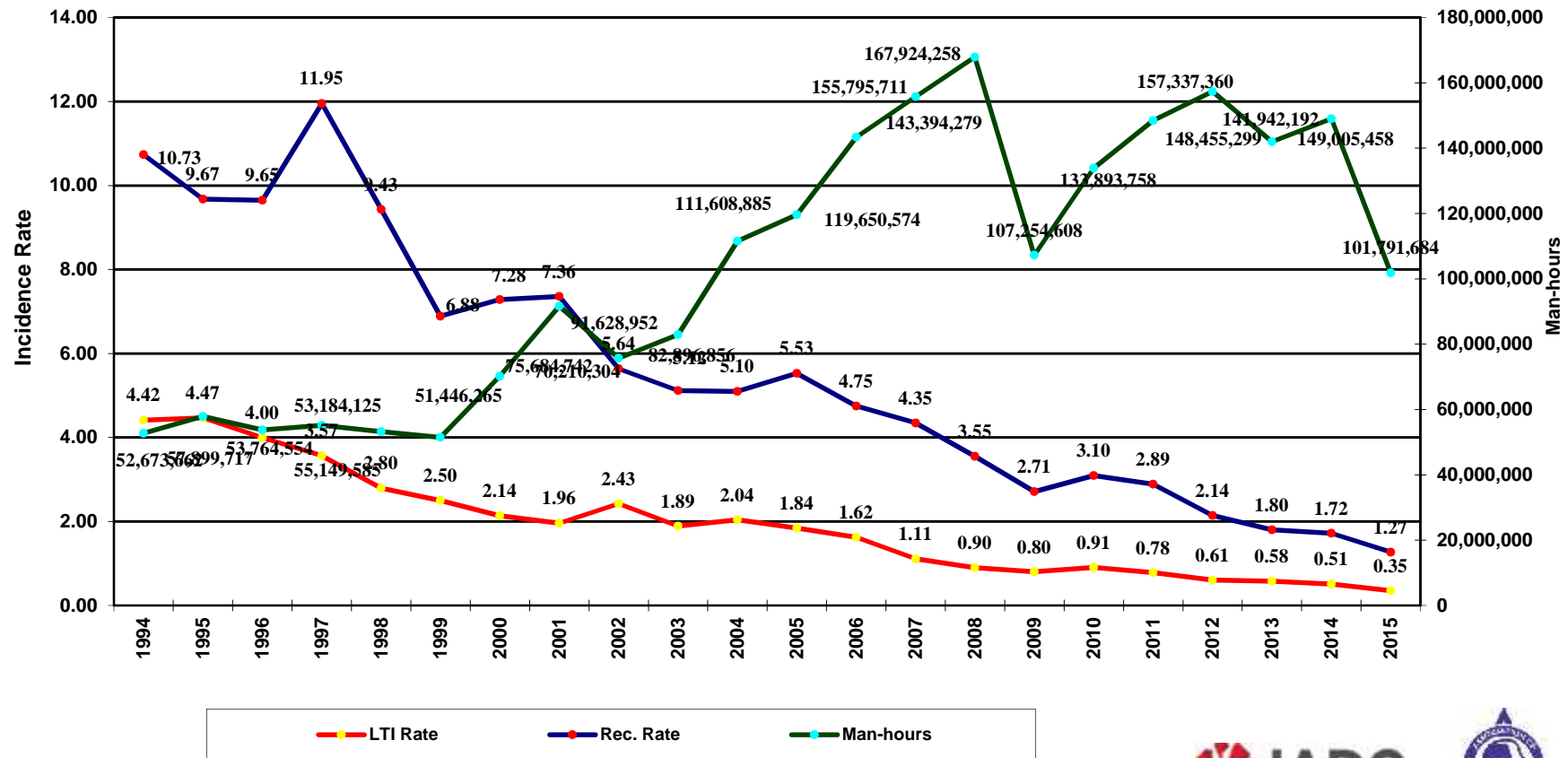
AESC SAFETY STATISTICS (less 2016 data point)



IADC Safety Stats for US Land Drilling



COMBINED AESC & IADC SAFETY STATS

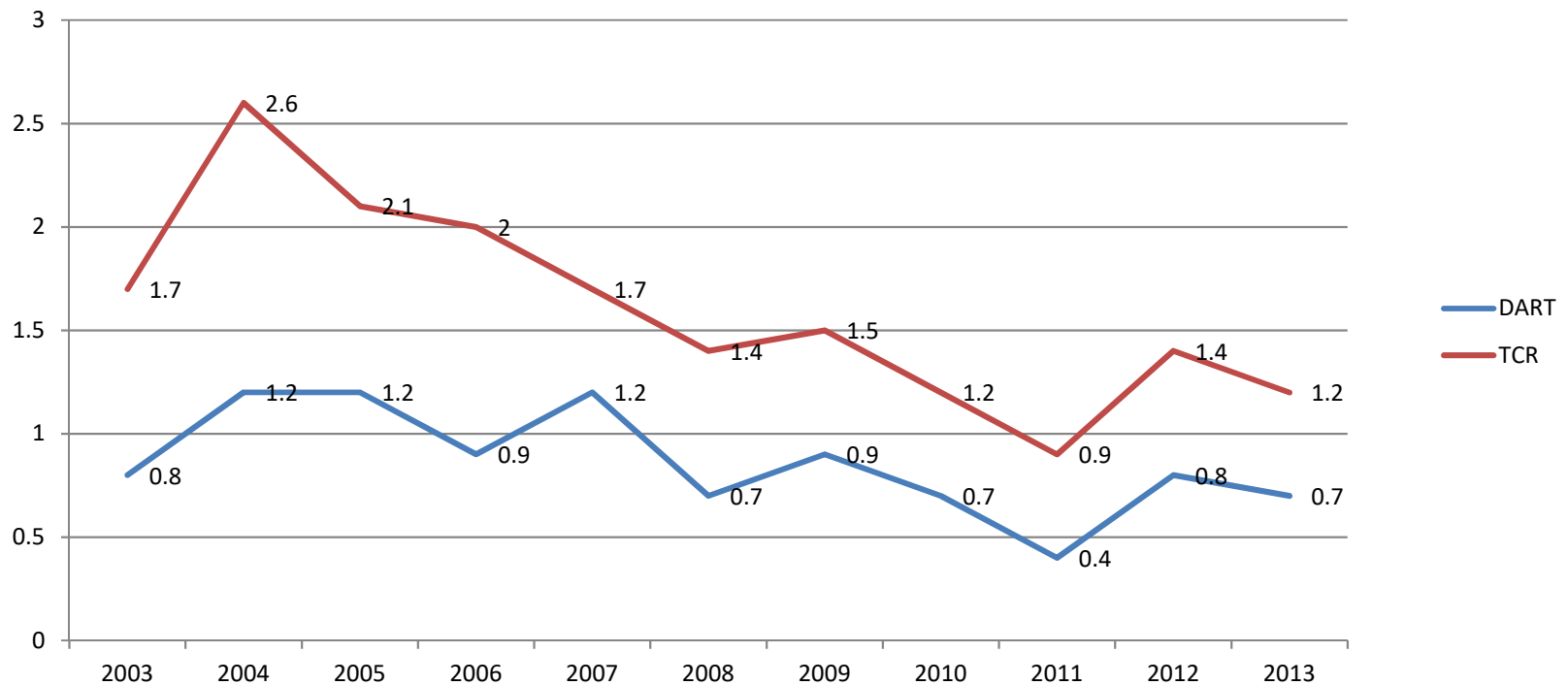


INTERESTING FACTOIDS

- The Statistics over the period of 1994 to 2015 represent over 2.3 BILLION man-hours of work performed, which is equivalent to approximately 1.1 MILLION man-years of work!
 - Over that period of time, we have seen from these statistics (both associations combined) a reduction at it's highest point on TRIR in 1997 of 11.95, to it's lowest point on TRIR in 1.27 in 2015, a reduction of 841% over a 19 year period of time!
 - Even when activity and man-hours were increasing significantly, rates were decreasing.
-

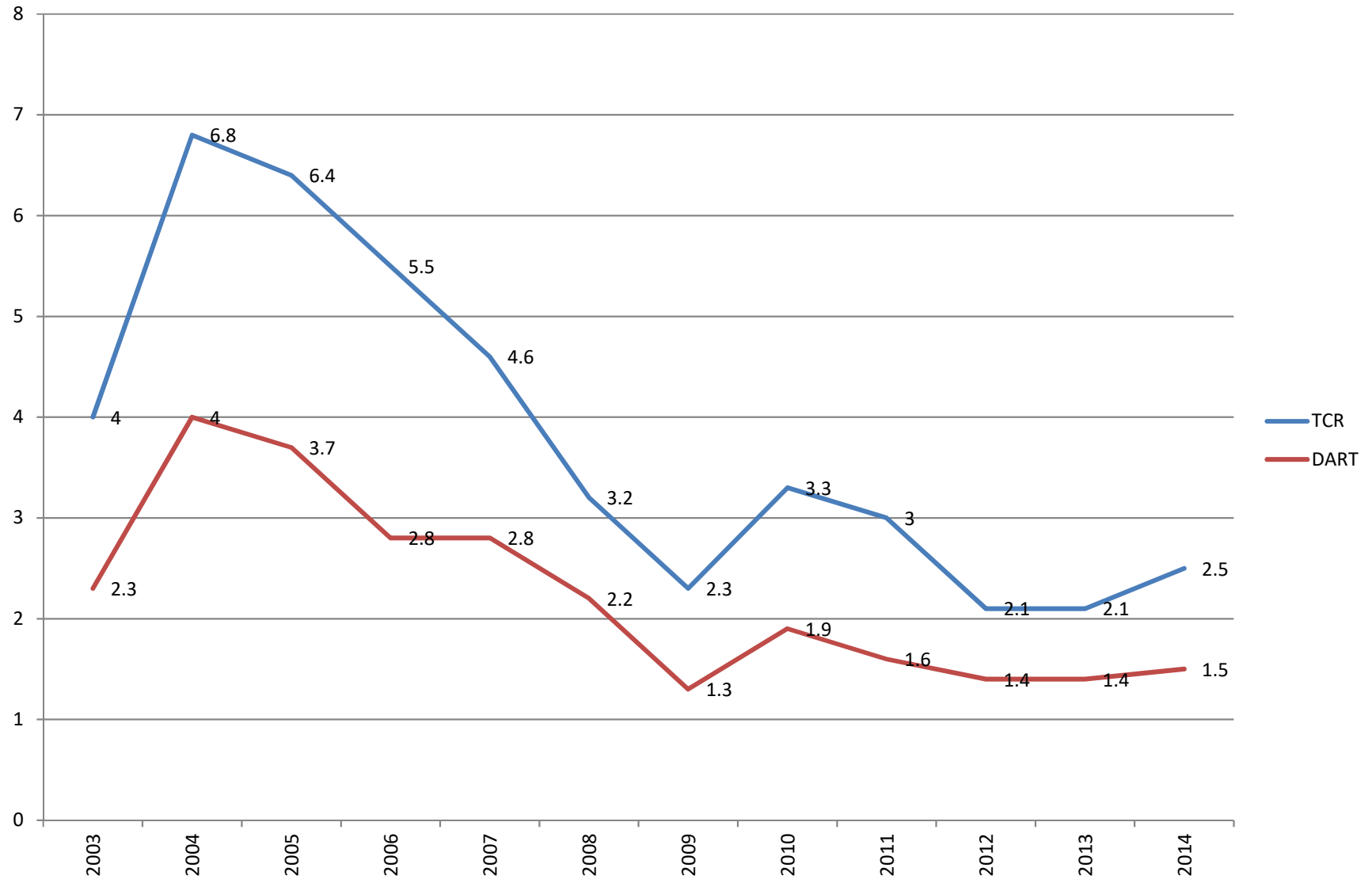
OSHA STATISTICAL DATA

OSHA DATA FOR NAICS CODE 211111 (Oil & Gas Exploration and Production)



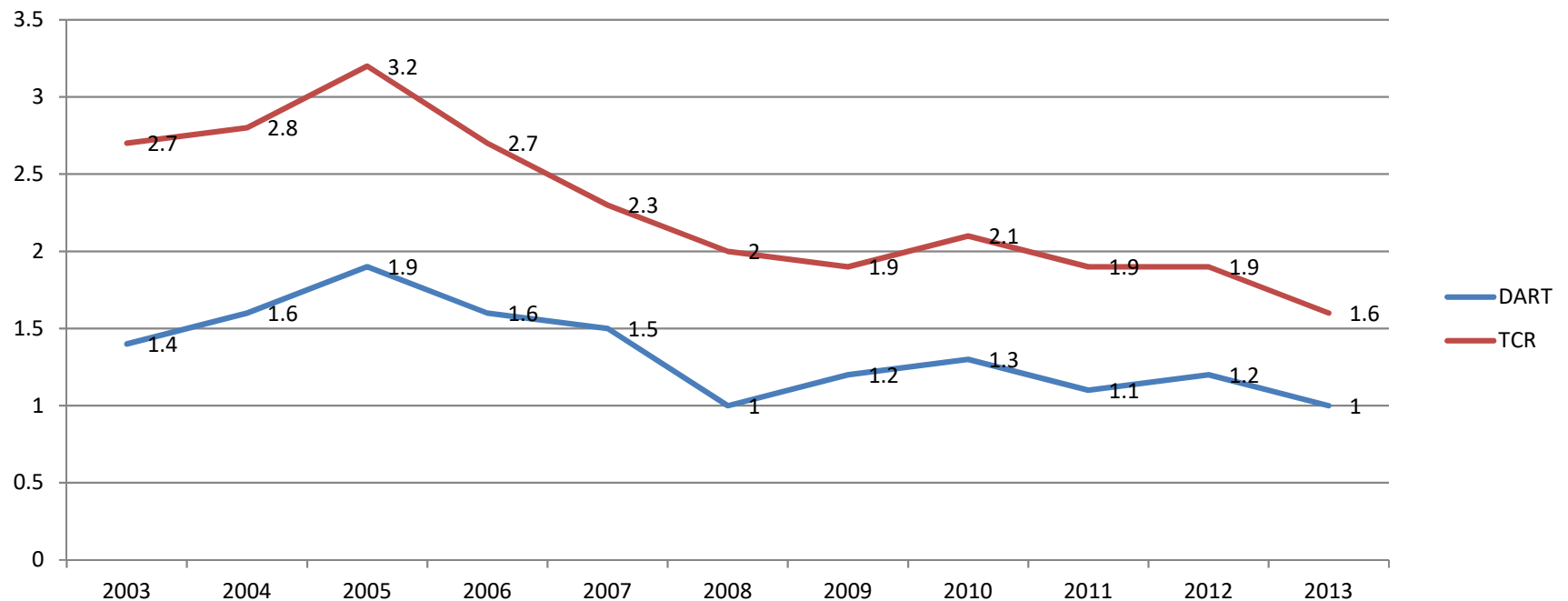
* Data Provided by OSHA

OSHA DATA FOR NAICS CODE 213111 (Drilling Oil and Gas Wells)



OSHA STATISTICAL DATA

OSHA DATA FOR NAICS CODE 213112 (Support Activities for Oil and Gas Operations)



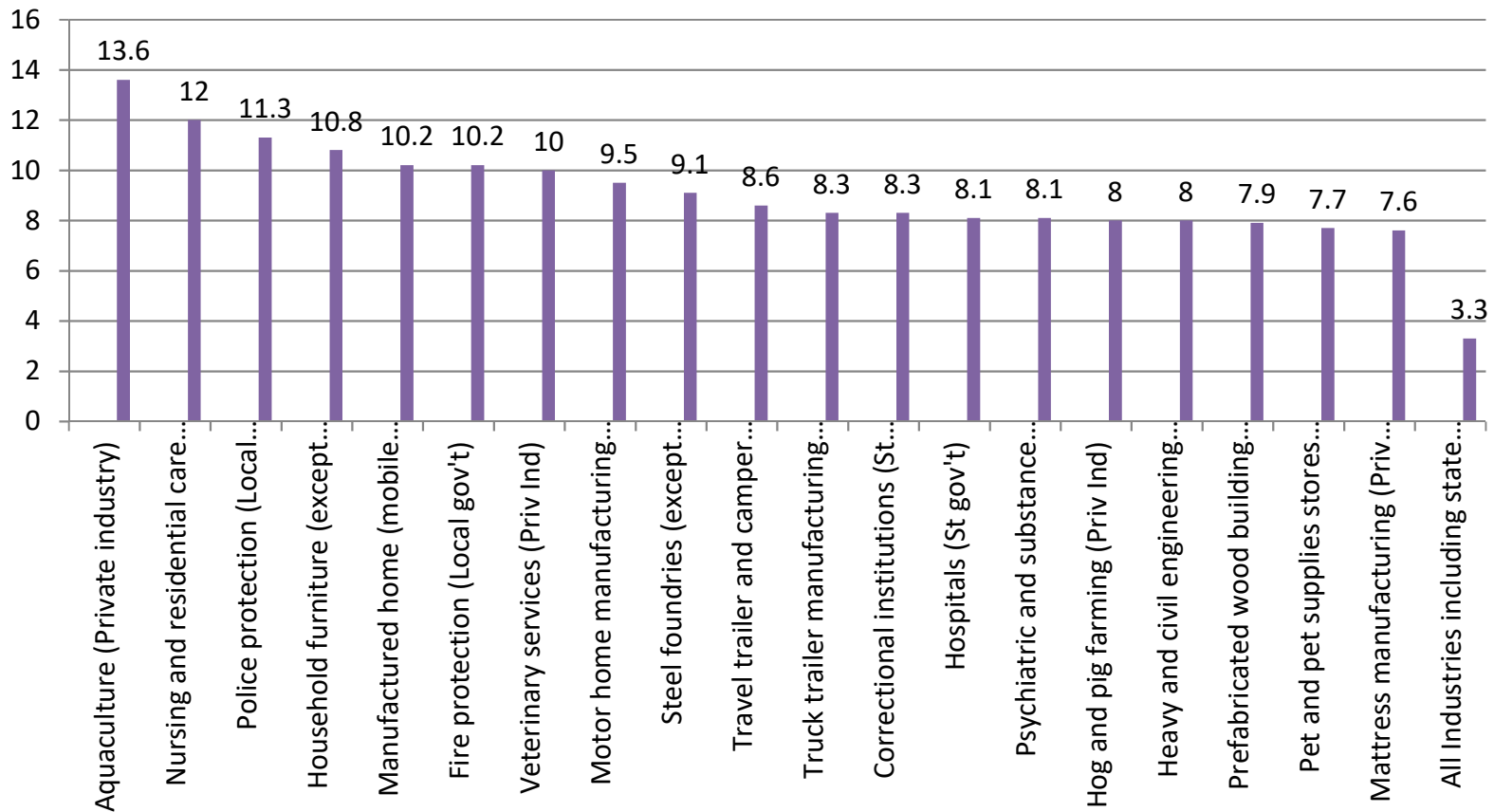
* Data Provided by OSHA

TABLE SNR01. Highest Incidence Rates of Total Nonfatal Occupational Injury and Illness Cases, 2015(BLS)

Aquaculture (Priv ind)		13.6
Nursing and residential care facilities (St gov't)		12
Police protection (Local government)		11.3
Household furniture (except wood and metal) manuf (Priv Ind)		10.8
Manufactured home (mobile home) manuf (Priv Ind)		10.2
Fire protection (Local gov't)		10.2
Veterinary services (Priv Ind)		10
Motor home manufacturing (Priv ind)		9.5
Steel foundries (except investment) (Priv ind)		9.1
Travel trailer and camper manufacturing (Priv ind)		8.6
Truck trailer manufacturing (Priv ind)		8.3
Correctional institutions (St gov't)		8.3
Hospitals (St gov't)		8.1
Psychiatric and substance abuse hospitals (Priv Ind)		8.1
Hog and pig farming (Priv Ind)		8
Heavy and civil engineering construction (Local gov't)		8
Prefabricated wood building manufacturing (Priv ind)		7.9
Pet and pet supplies stores (Priv indy)		7.7
Mattress manufacturing (Priv ind)		7.6
All Industries including state and local government		3.3

* Data Provided by BLS

TABLE SNR01. Highest Incidence Rates of Total Nonfatal Occupational Injury and Illness Cases, 2015(BLS)



* Data Provided by BLS

2012-2015 OSHA Data

29 CFR 1910 Citations

- 1071 Inspections.
 - 3078 Citations. 1353 Serious.
 - 567 Electrical (1910.303-.334).
 - 359 Handrails (1910.24).
 - 336 PPE (1910.132-.138).
 - 237 Hazcom (1910.1200).
 - 181 Machine guarding (1910.212-.219).
 - 136 Medical/First aid (1910.151).
-

2012-2015 OSHA Data

Leading Causes of Fatal Accidents

- Struck by, caught in, caught against (49 %)
 - Fire and Explosion (14.2%)
 - Falls (12.3%)
 - Asphyxiation (5.7%)
 - Electrocution(5.2%)
-

Citations Don't Reflect Leading Causes of Accidents

1910 Standard

- Electrical Violations
- Handrails
- PPE
- Haz Com
- Machine Guarding

Leading Causes of Accidents

- Stuck by/Caught in/Against
 - Fires and Explosions
 - Falls
 - Asphyxiation
 - Electrocution
-

Comparison of General Duty Citations with Accident Causes 2012-2015

General Duty Citations

- Struck by /Crushing
- Explosion
- Falling
- Heat
- Unclassified

Leading Causes of Accidents

- Struck by Caught in
 - Fire and Explosion
 - Falls
 - Asphyxiation
 - Electrocution
-

Evaluation of General Duty Citations 2012-2015 Sic 1300

Inspection /Citations

- 37 General Duty Citations
- 26 Stuck By/ Crushing
- 3 Explosion
- 3 Falling
- 1 Heat (er)
- 4 Unclassified
- Accident investigation vs. Inspection

From Violation Description

- 13 related to Geronimo Line
 - 5 related to wire rope or chain failure
 - 2 by unexpected pressure release
 - 4 falling equipment
 - 2 stuck by load
 - 5 improper guys/anchors
 - 6 Misc.
-

This presentation contains information that is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. The mention of any non-governmental organization or link to its website(s) in this presentation does not constitute an endorsement by OSHA of that organization or its products, services, or website(s).
