



North Texas STEPS
Meeting

August 2019

AESC Safety Statistics
and Fatality Overview

AESC SAFETY STATISTICS OVERVIEW

FATALITY AND SEVERE INJURY DATA

Special thanks for Kyla Retzler and other members of the NIOSH/NORA Oil and Gas Extraction Council for allowing us to utilize their data



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AESC SAFETY STATISTICS – ACTUAL

SAFETY STATISTICS SUMMARY 1994 - 2018			
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
2016	0.37	1.26	35,673,108
2017	0.36	1.31	50,020,528
2018	0.32	1.33	75,264,076

COMPANY SIZE BREAKDOWN ALL SERVICE COMPANIES REPORTING

ALL SERVICE COMPANY REPORTS		
REPORTED GROUP HOURS	LTA	TRIR
GROUP I (0-75K HRS)	.69	1.15
GROUP II (75K - 150K HRS)	.49	2.21
GROUP III (150K - 300K HRS)	.60	1.57
GROUP IV (300K - 2,500K HRS)	.27	1.05
GROUP V (>2,500K HRS)	.31	1.49
TOTAL OTHER SERVICES	.32	1.33



COMPANY SIZE BREAKDOWN RIG SERVICE COMPANIES REPORTING

WELL SERVICING RIGS ONLY		
REPORTED GROUP HOURS	LTA	TRIR
GROUP I (0-75K HRS)	1.11	1.85
GROUP II (75K - 150K HRS)	0.60	3.39
GROUP III (150K - 300K HRS)	0.99	2.57
GROUP IV (300K - 2,500K HRS)	0.32	1.32
GROUP V (>2,500K HRS)	0.35	1.68
TOTAL WELL SERVICE RIGS	0.38	1.65



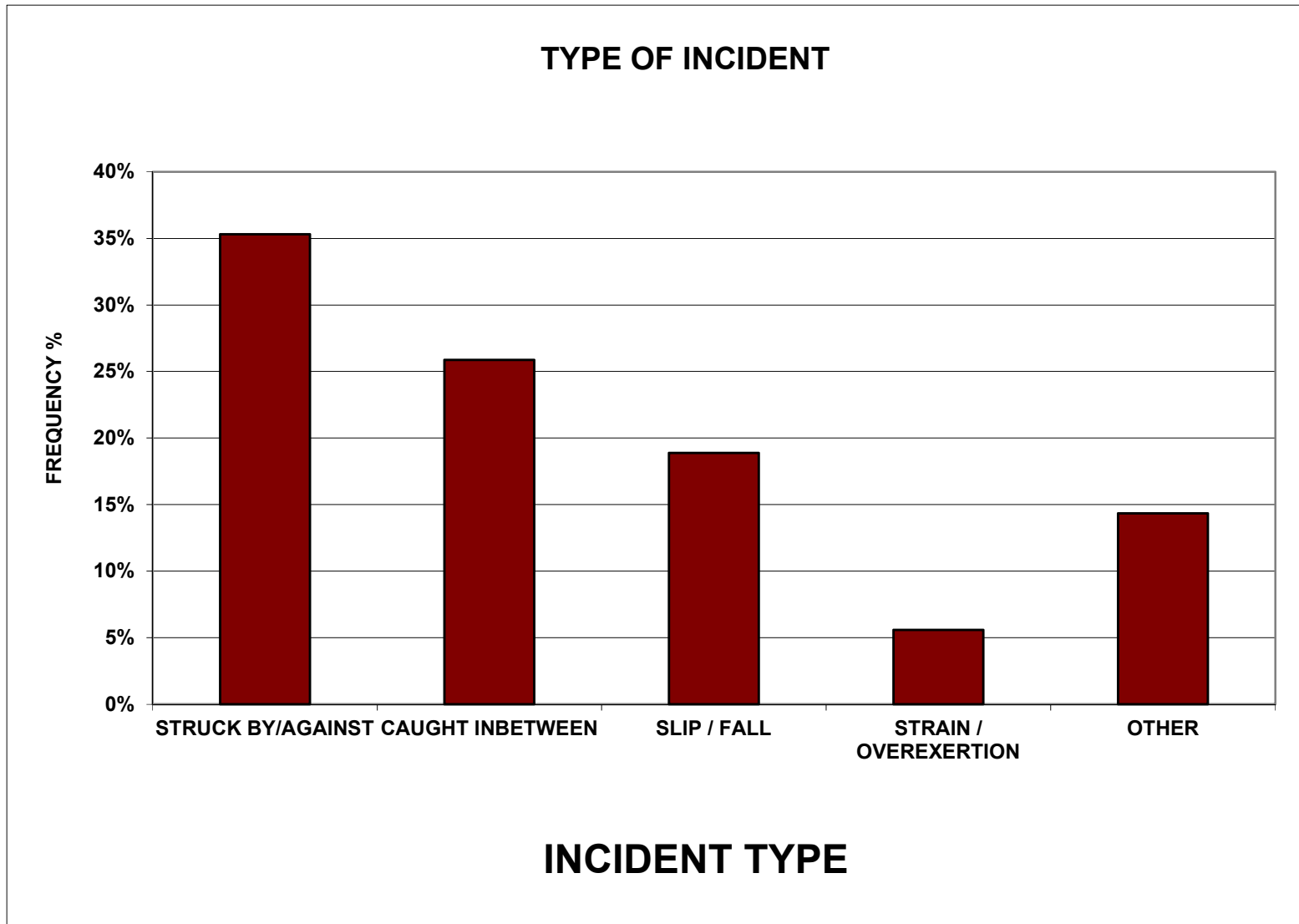
STATISTICAL OVERVIEW (AESC COMPARISON 3 YEAR)

Year	2016	2017	2018
Avg Age (yrs)	37.7	32.6	36.1
Avg Time in Field (yrs)	9.2	7.5	5
Avg Time in Position (yrs)	5.7	5.6	3.6
Time of year (month)	June/July (tied)	Sept	July/Aug (tied)
Time of Day (am/pm)	(49.4/50.6)	(50.6/49.4)	(47.2/52.8)
Day of the Week	Thursday	Monday	Monday
Position	Floorhand (30.1%)	Floorhand (24.3%)	Floorhand (31.9%)
Type of Incident	Struck (34.1%)	Caught Between (27.5%)	Struck (35.35%)
Equipment Involved	Vehicles (18%)	Hand Tools (12.4%)	Hand Tools (13.0%)
Work Activity	Tripping Pipe (23.3%)	Tripping Pipe (17.9%)	Tripping Pipe (16.6%)
Location of Accident	Rig Floor	Rig Floor	Rig Floor
Part of the Body	Fingers/Hands/Wrist (36.2%)	Fingers/Hands/Wrist (42.2%)	Fingers/Hands/Wrist (42.1%)

LONG TERM GOALS OF THE PROGRAM

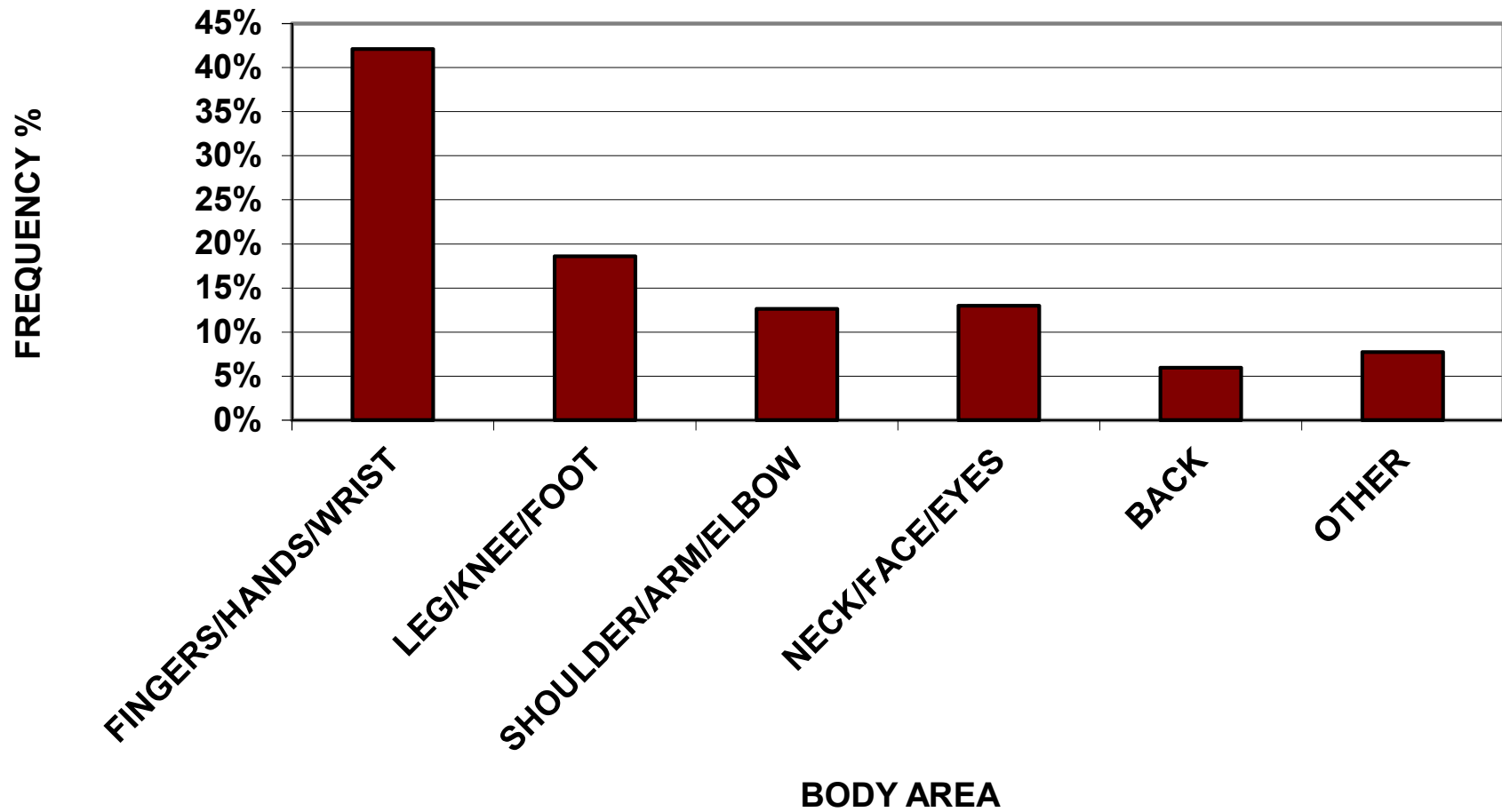
- ENOUGH COMPANIES REPORTING TO SEGMENT DIFFERENT SERVICE CATEGORIES
- PRESENTLY HAVE NUMEROUS COMPANIES REPORTING, HOWEVER, WELL SERVICING RIGS IS THE ONE WHERE WE HAVE ENOUGH STATISTICAL INFORMATION TO FEEL CONFIDENT IN THE FINDINGS
- AS ADDITIONAL SERVICE SEGMENTS REPORT (WIRELINE, COILED TUBING, TRUCKING/OILFIELD HAULING, ETC.), WE WANT TO EVENTUALLY REPORT BY SERVICE TYPE



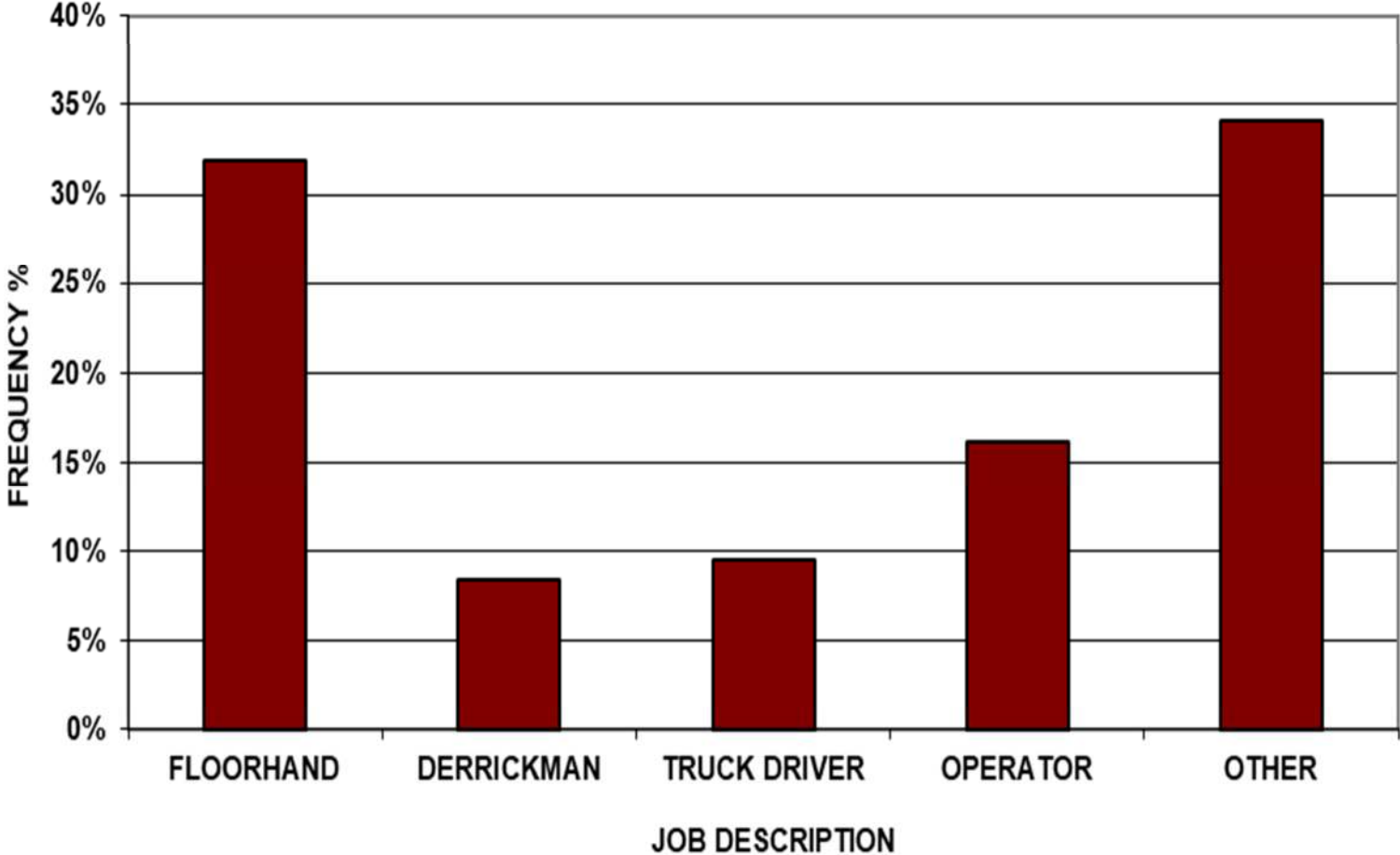


Struck By/Against and Caught Between account for 56% of incidents reported

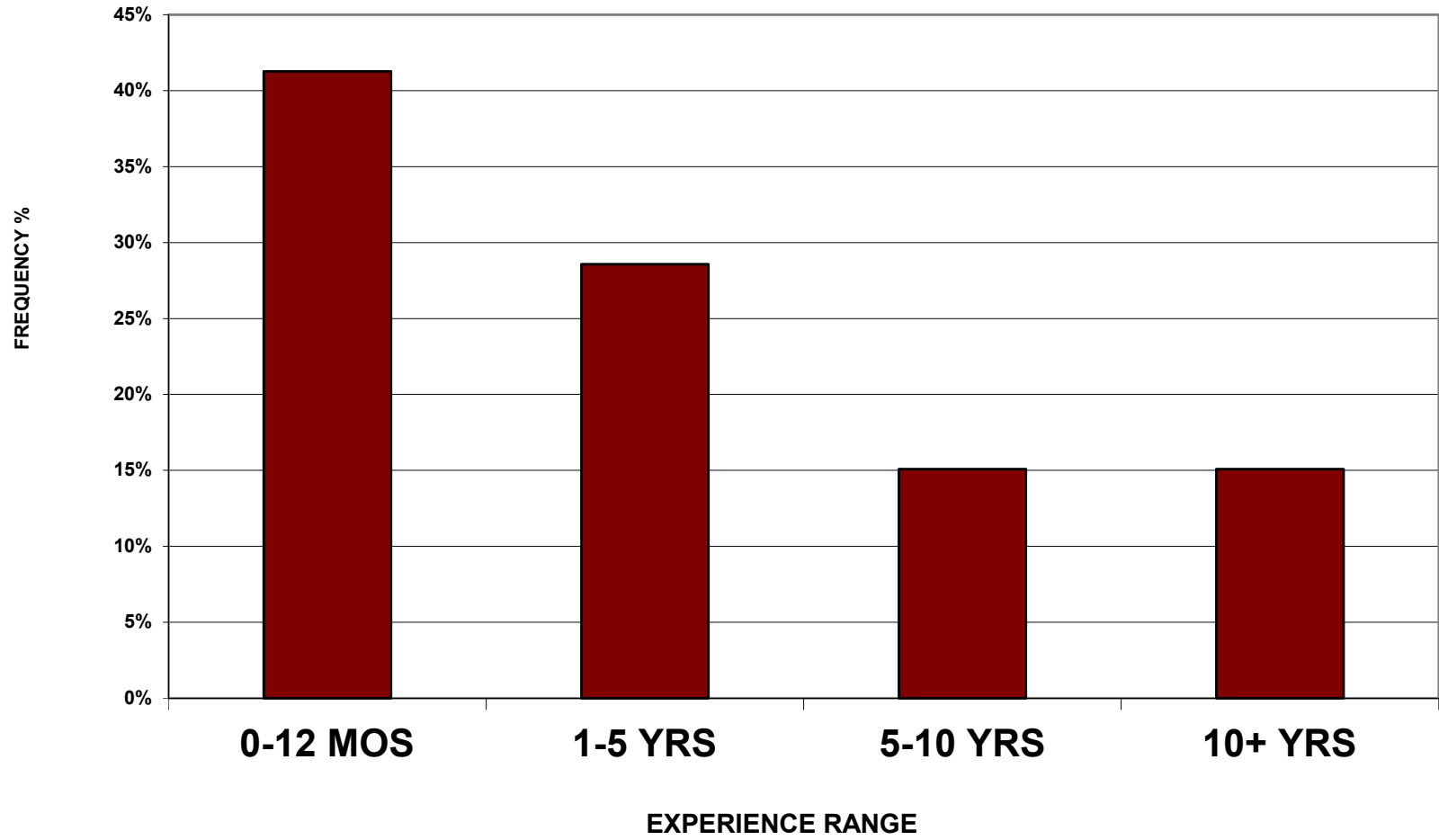
BODY PART AFFECTED



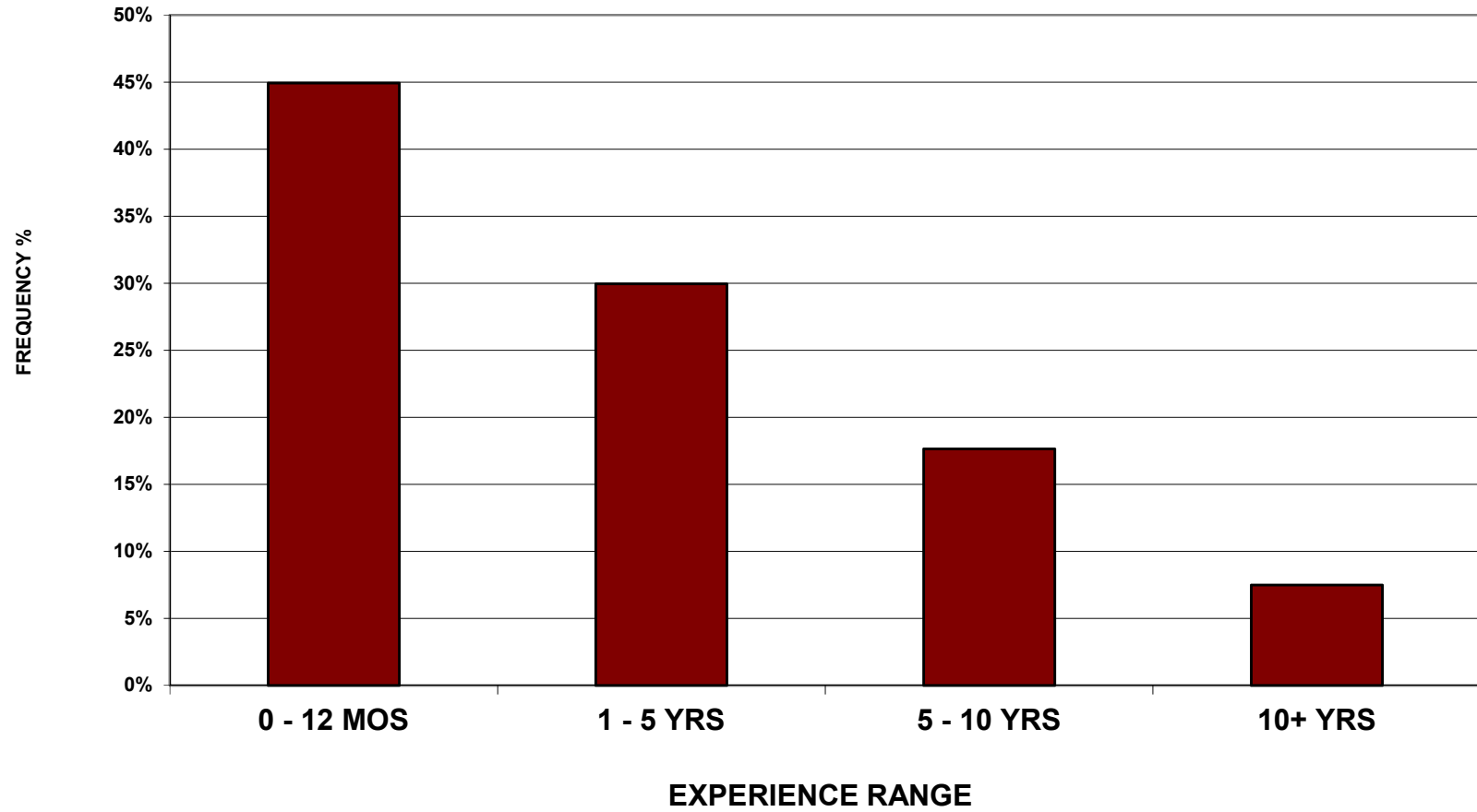
JOB TITLE



WORK EXPERIENCE



JOB EXPERIENCE



OBSERVATION FROM INCIDENT REPORTS

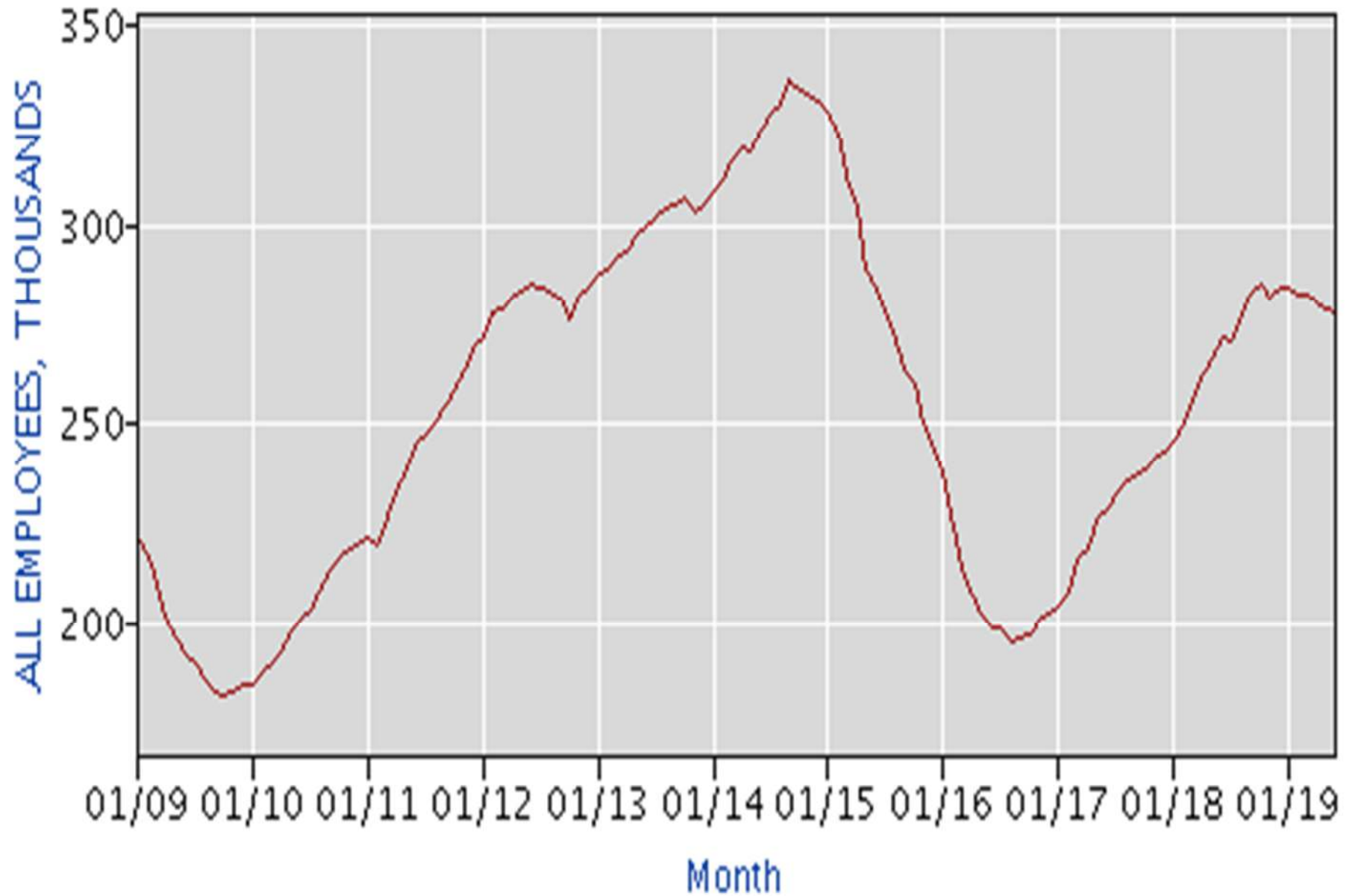
- WE SAW A LARGE NUMBER OF UNCONTROLLED PRESSURE RELEASE INCIDENTS THIS YEAR
- DUE TO THIS FACT, WE ARE UNDERTAKING A HAZARD ALERT ON SUDDEN PRESSURE RELEASES (NON-WELL CONTROL TYPE INCIDENTS
- IF YOU WOULD LIKE TO PARTICIPATE (EVERYTHING WILL BE DONE BY CONFERENCE CALL), CONTACT ME AT KJORDAN@AESC.NET TO WORK WITH OUR HSE TEAM ON THE ALERT. ALSO PARTICIPATING WILL BE REPRESENTATIVES FROM NIOSH, OSHA, STEPS, AND OTHER INDUSTRY COMPANIES



INTERESTING FACTOIDS

- The Statistics over the period of 1994 to 2018 (for AESC) represent over 1,016B man-hours of work performed, which is equivalent to approximately 488,000 man-years of work!
 - Over that period of time, we have seen from these statistics a reduction at it's highest point on TRIR in 1994 of 7.25 to it's lowest point on TRIR in 1.26 in 2016, a reduction of 575% over a 23 year period of time!
 - But we believe we can still improve!
-

LABOR COUNT FOR NAISC 213112 (SUPPORT ACTIVITIES)



Source: BLS Data

LABOR COUNT FOR NAISC 213112 (SUPPORT ACTIVITIES)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	221.2	216.9	209.6	201.7	196.1	192.4	190.3	186.2	183.1	182.2	183.0	184.4
2010	184.7	188.0	190.2	192.6	197.7	200.8	203.4	208.1	213.0	216.2	218.9	219.6
2011	221.6	219.7	226.9	233.1	238.2	244.7	247.9	249.9	254.3	258.6	263.8	268.7
2012	272.2	278.1	278.9	281.9	283.6	285.6	284.3	283.2	281.4	276.6	283.0	284.8
2013	287.8	288.7	292.1	293.7	297.0	299.6	301.3	303.8	304.8	306.7	303.1	305.0
2014	308.4	311.1	316.4	319.8	318.9	324.0	327.6	330.7	337.1	334.0	332.9	331.6
2015	328.6	322.9	312.4	304.2	288.5	284.8	277.8	270.6	263.5	259.8	250.0	244.3
2016	237.3	224.2	213.6	207.2	202.6	199.2	198.5	195.5	195.8	197.2	200.5	202.4
2017	204.5	208.1	216.1	218.3	225.8	228.5	232.0	236.1	237.0	238.7	241.0	242.7
2018	245.5	250.6	256.6	263.0	266.1	272.2	271.0	278.1	282.3	285.7	282.1	284.1
2019	284.7	282.6	282.4	281.1	278.6	278.3						

I : Seasonally Adjusted Independently. See https://www.bls.gov/web/empsit/cestn.htm#SA_ind for details.

P : preliminary

TABLE SNR01. Highest Incidence Rates of Total Nonfatal Occupational Injury and Illness Cases, 2017(BLS)

Industry	Incidence Rate
Motor home manufacturing (Private industry)	10.3
Skiing facilities (Private industry)	10.2
Veterinary services (Private industry)	9.8
Materials recovery facilities (Private industry)	9.8
Iron foundries (Private industry)	8.5
Wood container and pallet manufacturing (Private industry)	8.3
Manufactured home (mobile home) manufacturing (Private industry)	8.2
Couriers and express delivery services (Private industry)	8.2
Travel trailer and camper manufacturing (Private industry)	8.0
Pet and pet supplies stores (Private industry)	8.0
Correctional institutions (State government)	7.9
Beet sugar manufacturing (Private industry)	7.8
Psychiatric and substance abuse hospitals (Private industry)	7.8
Hog and pig farming (Private industry)	7.7
Hospitals (State government)	7.7
Framing contractors (Private industry)	7.5
Steel foundries (except investment) (Private industry)	7.4
Used household and office goods moving (Private industry)	7.4
Roasted nuts and peanut butter manufacturing (Private industry)	7.3
Light truck and utility vehicle manufacturing (Private industry)	7.2
Police protection (State government)	7.2
Ambulance services (Private industry)	7.1
Seafood product preparation and packaging (Private industry)	7.0
Nonferrous forging (Private industry)	7.0
Truck trailer manufacturing (Private industry)	7.0

Highest Fatality Rates by Private Sector (BLS Data)

Civilian occupations	Count	Rate
Fishers and related fishing workers	41	99.8
Logging workers	55	84.3
Aircraft pilots and flight engineers	59	48.6
Roofers	91	45.2
Refuse and recyclable material collectors	30	35.0
Structural iron and steel workers	14	33.4
Driver/sales workers and truck drivers	987	26.8
Farmers, ranchers, and other agricultural managers	258	24.0
First-line supervisors of landscaping, lawn service, and groundskeeping workers	53	21.0
Electrical power-line installers and repairers	26	18.7
Total	5,147	3.5

2012-2017 OSHA Data

Leading Causes of Fatal Accidents

- Transportation (49.4%)
 - Contact (19.8 %)
 - Fire and Explosion (12.5%)
 - Falls (8.2%)
 - Exposure (8.0%)
 - Others (2.1%)
-

Citations Don't Reflect Leading Causes of Accidents

1910 Standard

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

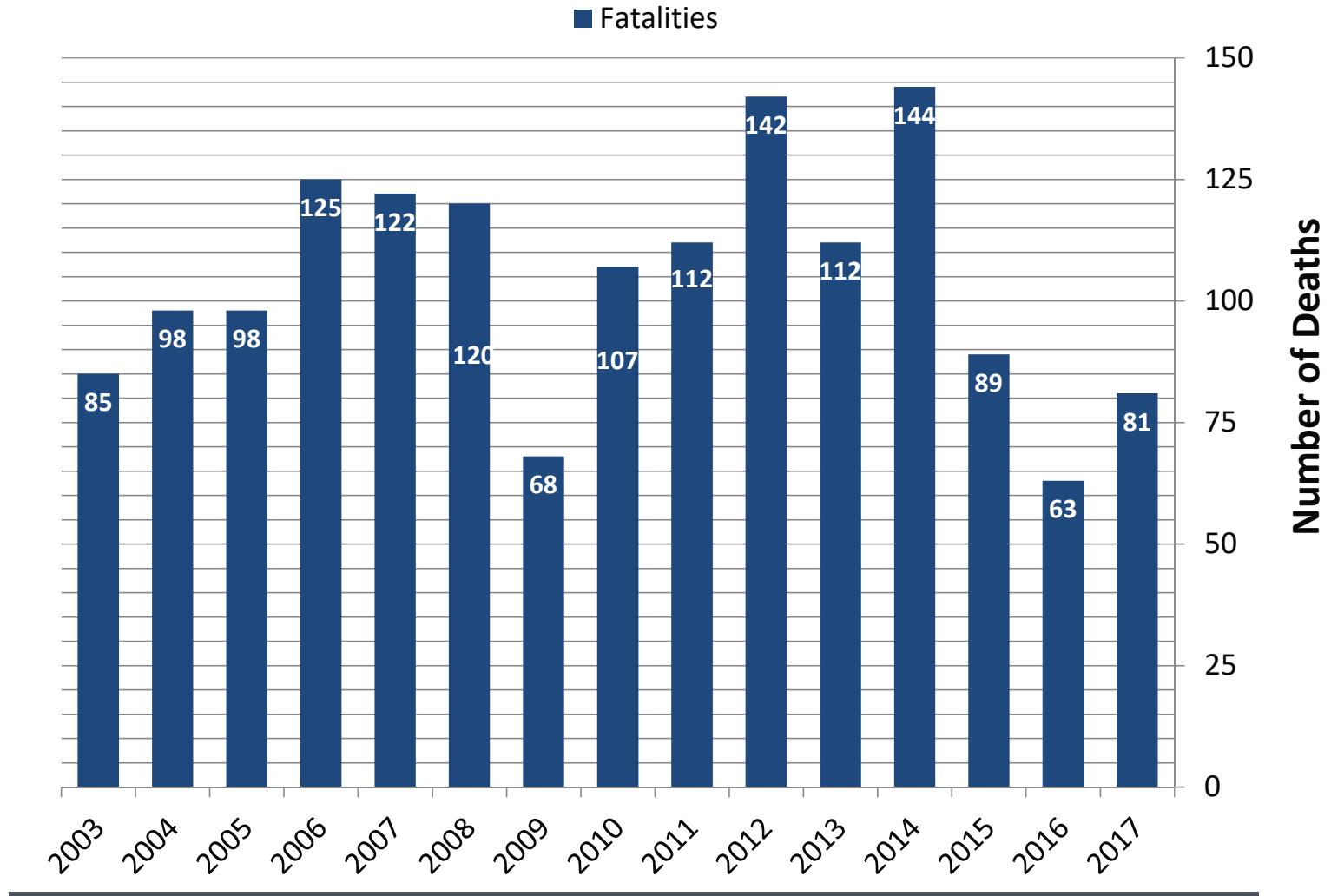
Leading Causes of Accidents

- Transportation
 - Contact
 - Fires and Explosions
 - Falls
 - Exposure
-

Fatality Data 2013-2017



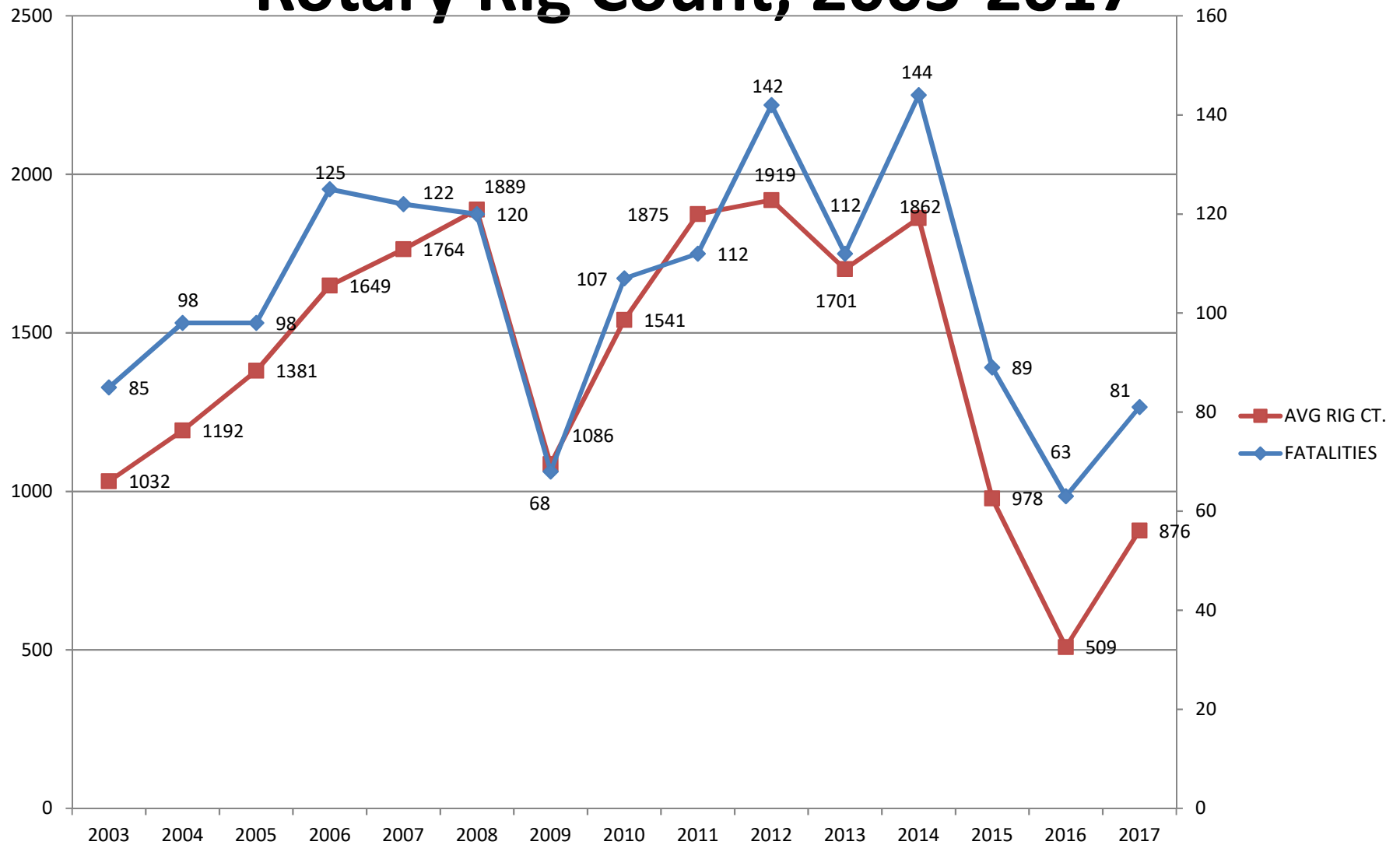
Number and Rate of Fatal Work Injuries U.S. Oil & Gas Extraction Industry, 2003–2017



Note: Fatality counts from BLS Census of Fatal Occupational Injuries. Includes NAICS 211, 213111, 213112..

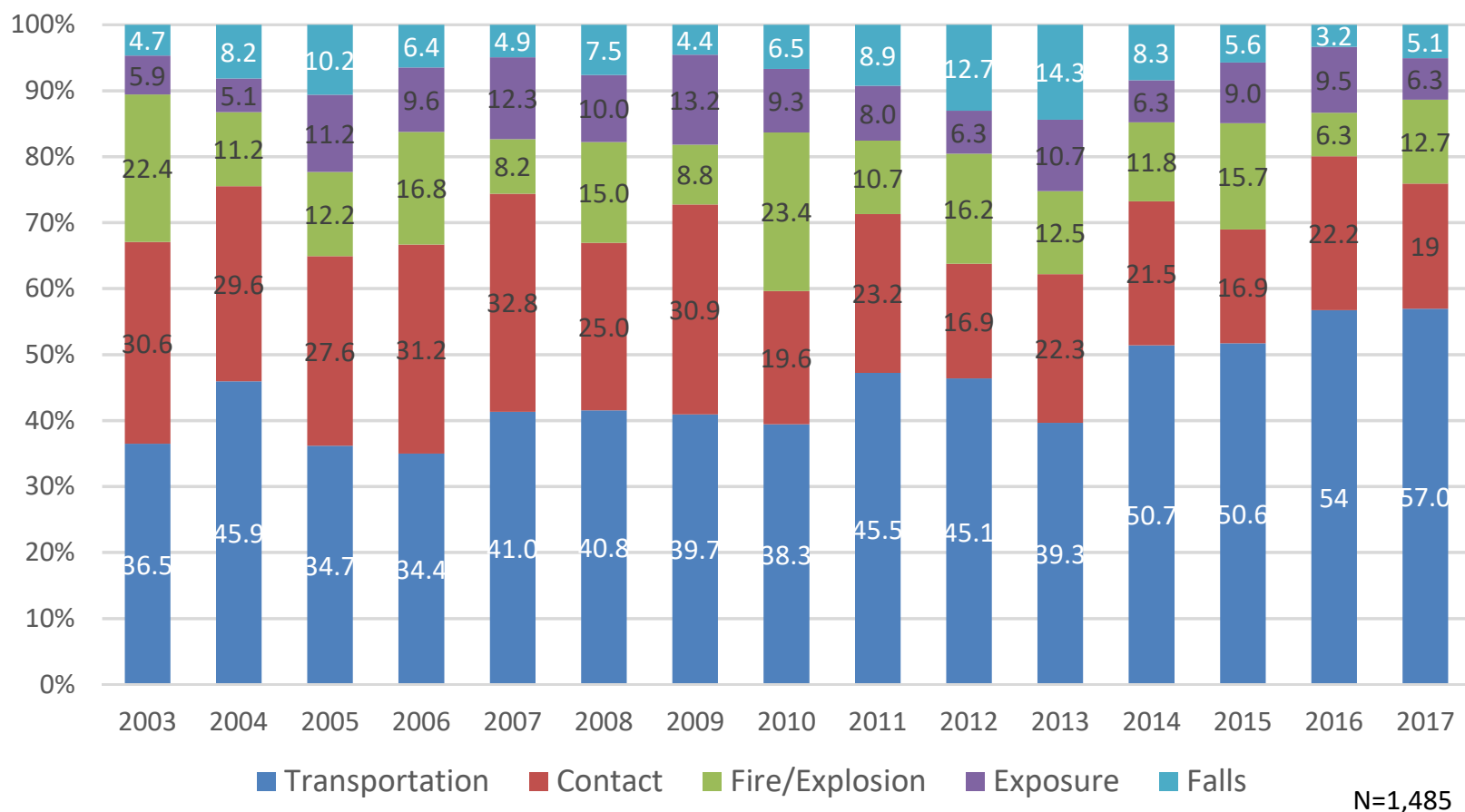


Rate of Fatal Work Injuries and U.S. Rotary Rig Count, 2003-2017



Note: Fatality counts from BLS Census of Fatal Occupational Injuries. Worker Estimates , Includes NAICS 211, 213111, 213112. Rotary Rig Count from Baker Hughes Rig Count.

Leading Causes of Occupational Fatalities (%) by Year, Oil and Extraction Industry, 2003-2017



Note: Fatality counts from BLS Census of Fatal Occupational Injuries

Fatalities: 2017

Data Source: BLS Census of Fatal
Occupational Injuries

Fatality Rates per 100,000 workers by Company Type U.S. Oil & Gas Extraction Industry, 2017

Company type (NAICS code)	Number	%
Operators (211)	8	9.9%
Drilling Contractors (213111)	12	14.8%
Well-servicing companies (213112)	61	75.3%
TOTAL	81	

Leading Causes of Death by Company Type

Oil and Gas Extraction Industry, 2017

Drilling Operations NAICS 213111

Event Type	No.	%
Transportation	6	50%
Contact with Objects and Equipment	4	33%
OTHER	2	17%
TOTAL	12	

Support Activities NAICS 213112

Event Type	No.	%
Transportation	35	57%
Contact with Objects and Equipment	11	18%
Exposure to harmful substances/environments	8	13%
Fires/Explosions	4	7%
Other	3	5%
TOTAL	61	

Note: Fatality counts from BLS Census of Fatal Occupational Injuries

Leading Causes of Death by Company Type Oil and Gas Extraction Industry, 2017

Oil and Gas Operators NAICS 211

Event Type	No.	%
Transportation	4	50%
Other (non-reportable)	4	50%
TOTAL	8	

Note: Fatality counts from BLS Census of Fatal Occupational Injuries

SEVERE INJURIES

OSHA Reporting of Severe Injuries

- On January 1, 2015, new laws for OSHA Reportable Injuries and Illnesses
 - Fatalities reported within 8 hours
 - In-patient hospitalization, amputations, loss of eye reported within 24 hours
- Three reporting options:
 - Call the nearest OSHA office
 - Call the OSHA 24-hour hotline at **1-800-321-6742**
 - Report online at www.osha.gov/pls/ser/serform.html
- Reported data publically available

Severe Injuries in Upstream Oil & Gas: A Quick Look

Hospitalizations in Oil and Gas:

- 602 Incidents, some resulting in multiple injuries (01/2015 to 12/2017)
 - 670 Hospitalizations
 - 242 Amputations

GOAL:

Conduct trending on these Hospitalizations in Oil and Gas (HOG) using the FOG Methodology, OSHA Severe Injury Reports, and associated OSHA Inspection Reports

Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



Severe Injuries in Upstream Oil & Gas: Nature of Injury (Jan 2015 - December 2017)

Nature Type	Count	% of Total
Amputations	191	24%
Fractures	216	27%
Soreness, pain, hurt - nonspecified injury	80	10%
Traumatic injuries and disorders, unspecified	31	4%
Heat (thermal) burns, unspecified	41	4%
Cuts, lacerations	36	5%
Fractures and other injuries, n.e.c.	14	2%
Poisoning, toxic, noxious, or allergenic effect, unspecified	19	2%
Crushing injuries	31	4%
Other	131	17%

Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



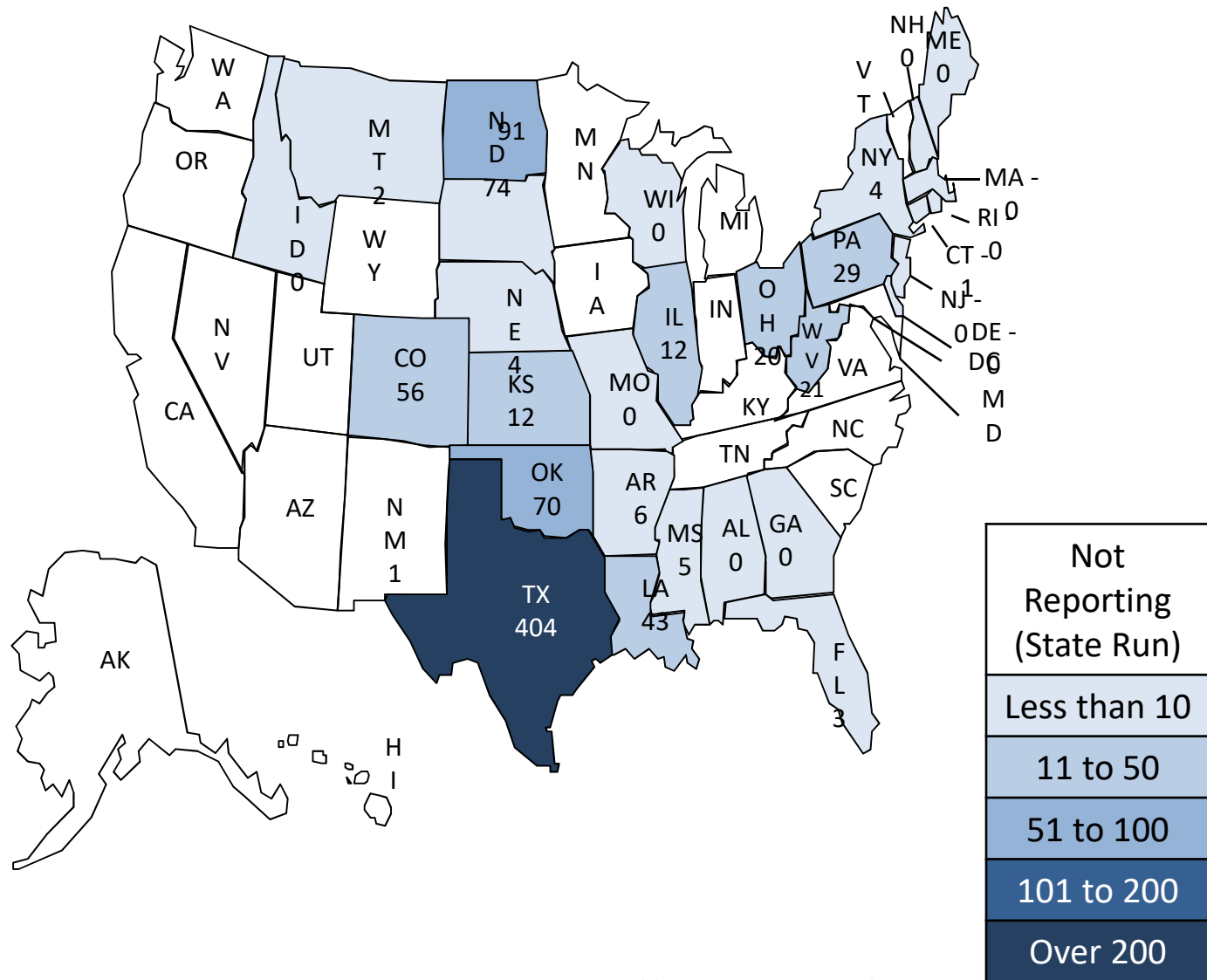
Severe Injuries in Upstream Oil & Gas: Amputation Type (Jan 2015 - Dec 2017)

Amputation	Count	Percent
Finger(s), fingernail(s)	128	53%
Fingertip(s)	89	37%
Foot (feet), n.e.c.	2	1%
Hand(s), except finger(s)	1	1%
Hand(s), n.e.c.	2	1%
Leg(s)	6	2%
Multiple body parts, n.e.c.	3	1%
Nonclassifiable	3	1%
Toes(s), toenail(s)	8	3%

Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



Severe Injuries in Upstream Oil & Gas: Incident Location (Jan 2015 - Dec 2017)



Data Source: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>

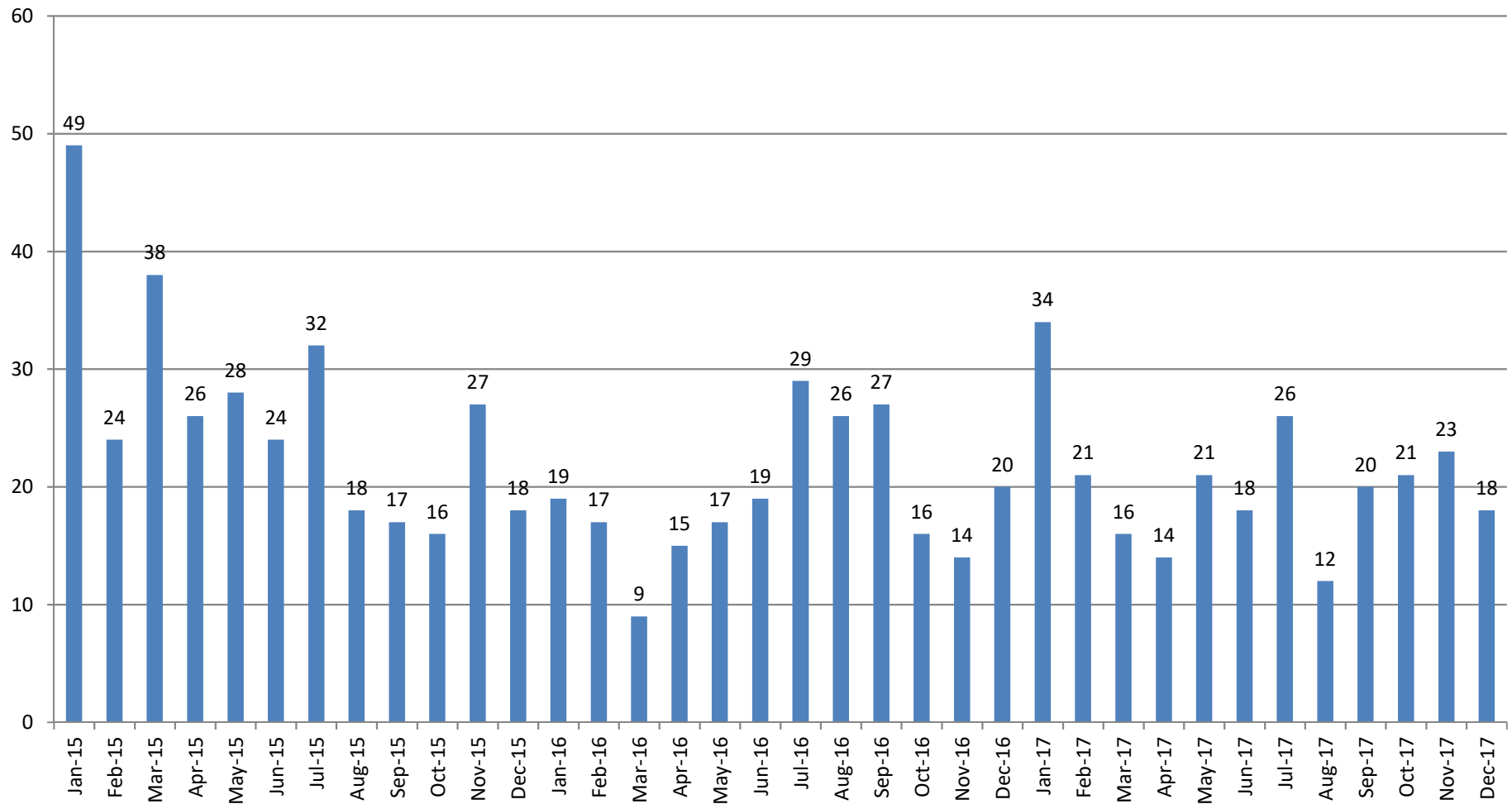
Severe Injuries in Upstream Oil & Gas: Nature of Injury

(Jan 2015-February 2017)

- A fracture isn't always “just” a fracture...

“An employee was gauging a crude oil tank through a thief hatch and may have been exposed to vapors from the tank or oxygen depletion. The employee became ill and fell down the stairs breaking the right wrist.”

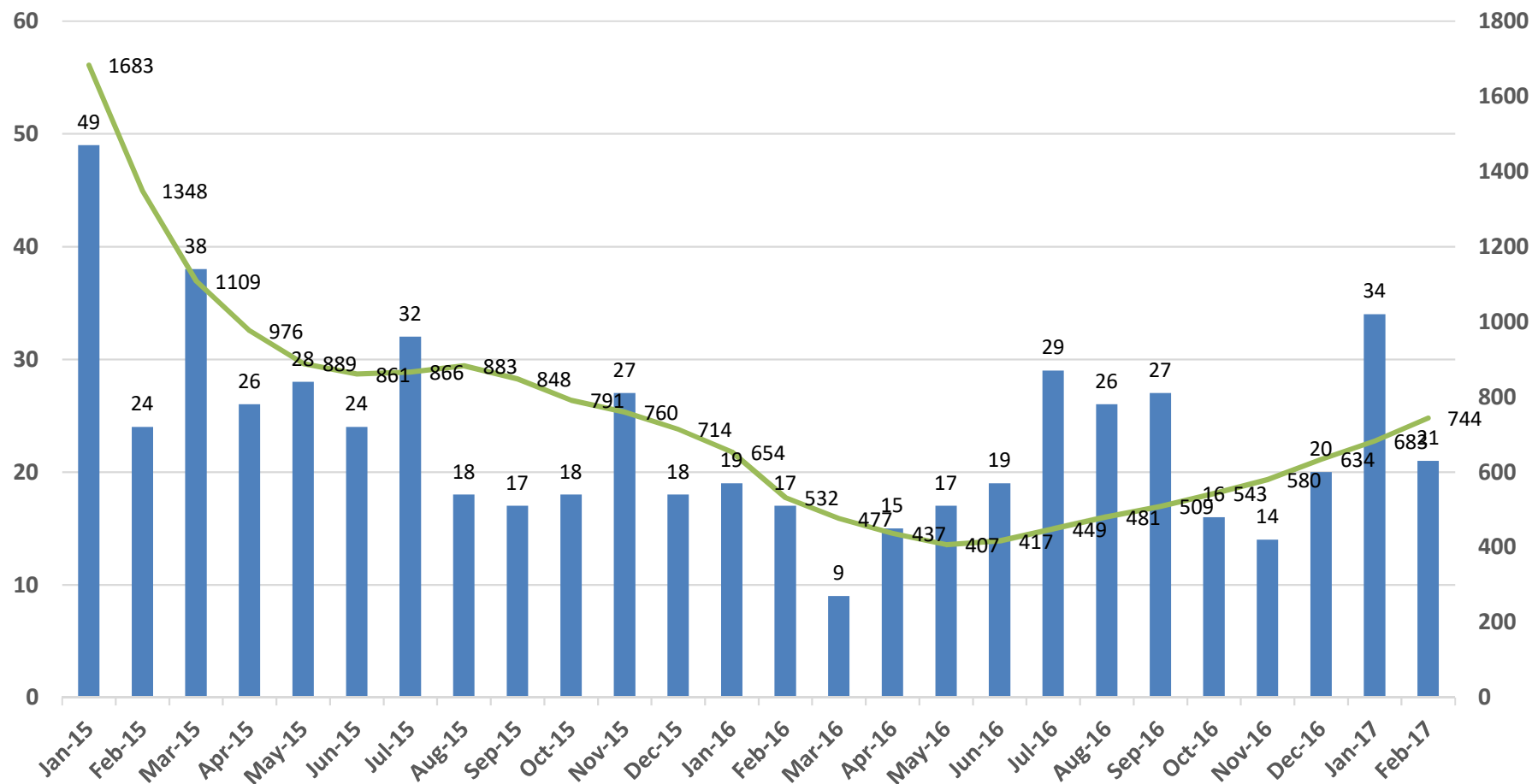
Severe Injuries in Upstream Oil & Gas by month (Jan 2015 – Dec 2017)



Data Sources: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>



Severe Injuries in Upstream Oil & Gas vs. US Rotary Rig Count (January 2015 – February 2017)



Data Sources: OSHA Severe Injury reports, accessible online at <https://www.osha.gov/severeinjury/index.html>
 Baker Hughes Rotary Land Rig Counts for United States, accessible online at <http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother>



Severe Injuries in Upstream Oil & Gas : Data Gaps and Limitations

- State-run OSHA programs not included (i.e. Alaska, California, etc.)
- Under-reporting and reporting errors
 - Estimated to be roughly 50% underreported based on workers compensation data¹
 - Self-reported incidents may lack crucial detail or information
- OSHA Jurisdiction does not cover:
 - Incidents that occur on public streets, highways, or on normal commute²
- Trucking/ Hauling related incidents may be listed on other NAICs codes

Sources: (1) Year One of OSHA's Severe Injury Reporting Program: An Impact Evaluation By David Michaels, PhD, MPH

(2) Updates to OSHA's Recordkeeping Rule: Reporting Fatalities and Severe Injuries Fact Sheet



SafeLand USA Program

- In 2003, the industry developed a new hire orientation program (not training, but orientation)
- Now accepted by numerous E&P companies
- To date, almost 1.4M employees have been through the program



What Are We Seeing Now

- **Skilled Employees are in High Demand**
- **Well Servicing is a “Blue Collar” Job Market**
- **Shortages in CDL Drivers, Mechanical Skills (diesel mechanics, hydraulics, electricians, fabricators)**
- **Passing a drug test is an issue**
- **Companies are just hiring from each other at this point**
- **Equipment isn’t the issue, people are**
- **Training is an ongoing issue, especially in areas of safety/well control**
- **Will probably see some service company consolidation in 2019/2020**



What Are We Seeing Now

- **Lone Worker programs imperative to companies**
- **Cell Phone policies, do companies pay for cell phones or service (see next case on next slide)**
- **Master Service Agreements (many companies don't have or follow what they sign)**
- **Well Control orientations/training**
- **In Vehicle Monitoring Systems**
- **Anticipating a slight downturn through Q4 2019, starting to see layoffs at some companies/consolidations**



Here's What Just Happened 11-2018

- Lytle woman wins \$43.5M jury verdict in driving-while-texting case (\$30M punitive to the company, \$2.5M punitive to the driver), Oil Field Service Company
https://www.mysanantonio.com/business/local/article/Lytle-woman-wins-43-5M-jury-verdict-in-12378537.php?utm_campaign=email-desktop&utm_source=CMS%20Sharing%20Button&utm_medium=social
- Texted 2,000 times while he was driving in the five-month period leading up to the wreck
- Alleged he had been in a phone conversation for two minutes just before the incident and he had been texting within four minutes before that
- Alleged the Company had “numerous different cellphone policies” while driving for both executives and nonexecutives.
- Jurors decided the wreck was caused by the company’s lack of safety management and Hunt’s failure to drive carefully, according to Henry.
- The jury verdict included almost \$7.3 million for physical pain and mental anguish, \$2.9 million for physical impairment, almost \$1.3 million for medical expenses and \$1.1 million for loss of past and future earnings.



Leading Industry Publication

Well Servicing

July/August 2010

The Voice of the Oil & Gas Service Industry™

FUEL MANAGEMENT — SECURITY AND ACCURATE DATA
OIL SCOUTS — ANALYZING THE PULSE OF E&P ACTIVITY
WORST CASE SCENARIOS — LEADERSHIP COUNTS



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