Proactive Collaboration Between Regulators and Industry to Improve Safety

David Bates, OSHA
Kenny Jordan, AESC
Joyce Ryel, National STEPS

National STEPS

- The National Service, Transmission, Exploration & Production Safety (STEPS) Network is an all-volunteer organization which was founded in 2003 in South Texas by OSHA and Industry in an attempt to reduce injuries and fatalities in that region.
- The effort was successful, and STEPS has continued to grow, currently including 22 independent networks serving fifteen producing states. Eight of the networks have signed formal alliances with OSHA.

STEPS Vision Statement: "Incident-Free Operations"

- The National STEPS Network includes Operators and Contractors in the Oil and Gas Exploration, Production and Product Transmission industry as equally valued members in partnership with OSHA, API, AESC, IADC, IPAA, other trade associations, and educators across the country.
- The Network's goal is to serve all producing regions of the United States and to eventually share our philosophy internationally.

Action Items

Respirable Silica Focus Group

Engineering Controls Resources

OSHA 5810 Hazards & Standards Controls

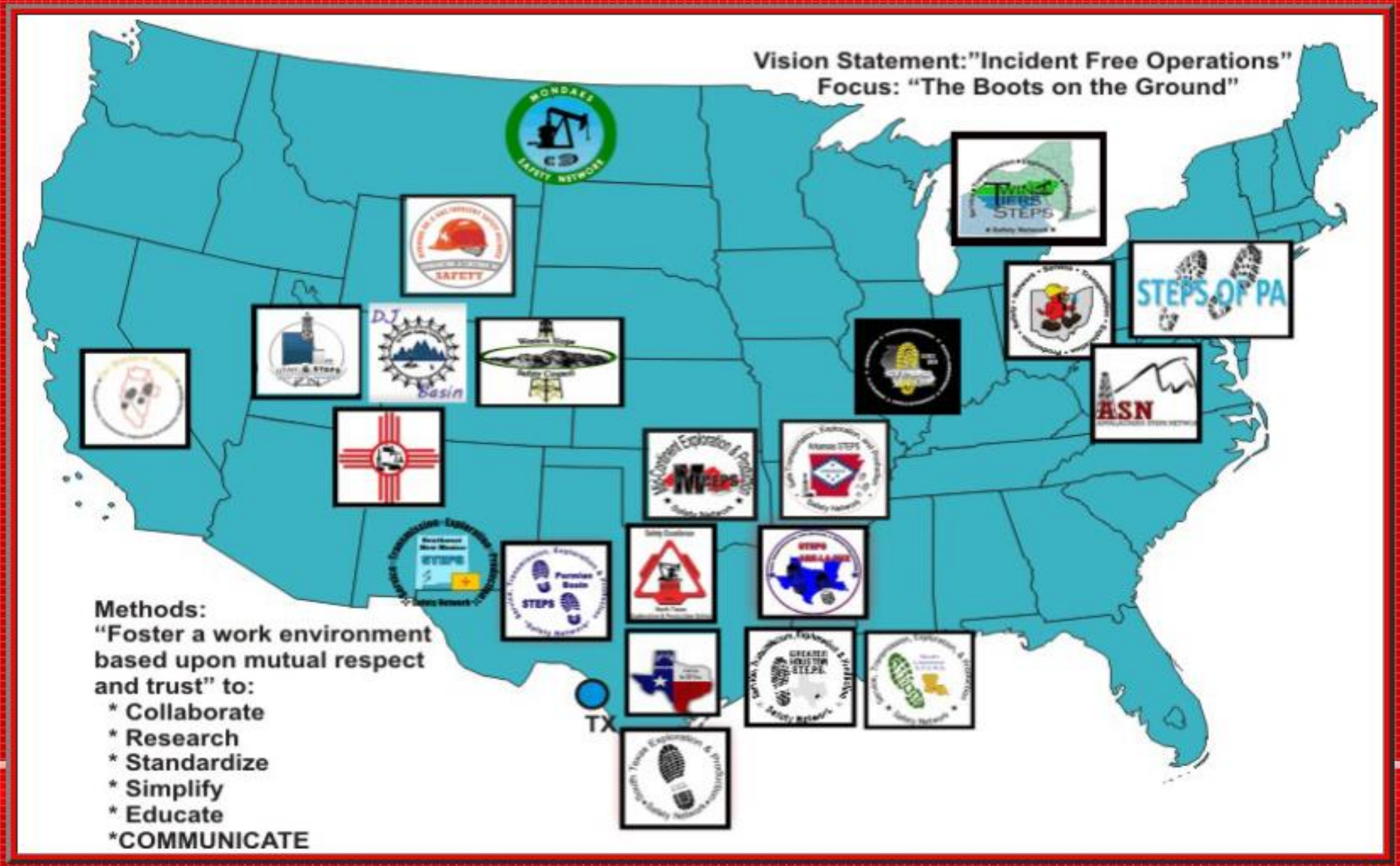
FRC in USA Onshore E & P

SafeLandUSA

Voluntary Stand Downs

NIOSH NORA

OSHA Oil & Gas Conference


Vision Statement:"Incident Free Operations"
Focus: "The Boots on the Ground"
STEPS OF PA
ASN
TX
Methods:
"Foster a work environment based upon mutual respect and trust" to:
* Collaborate
* Research
* Standardize
* Simplify
* Educate
*COMMUNICATE

Signing of The National Steps Network/OSHA/NIOSH Alliance - 29 Nov 2016

Benefits of Participating in the Alliance Program

- Build a cooperative and trusting relationship with OSHA
- Network with other organizations committed to workplace safety and health
- Leverage resources to maximize worker protection
- Gain recognition as proactive leaders in safety and health

Oil & Gas Industry

- Oil and Gas becomes focus industry in 2006.
- In January 2007, the Area VI Oklahoma office of OSHA with James Brown, Director and Heather Hartman, Compliance Assistance Specialist, along with the STEPS (South Texas Exploration & Production Safety Network) invite oil & gas industry members to meet to look at forming an alliance with OSHA.
- 170 concerned industry leaders met in OKC.

Group Discussion on safety issues led to the formation of an Ad Hoc Committee made up of 26 attendees to begin planning the birth of MCEPS

All facets of the industry were represented. Including:

- Production
- Insurance
- Maintenance
- Trucking

Mid-Continent Exploration & Production

MCEPS NETWORK

Safety Network

Alliance Program Goals

- <u>Training and education:</u> Examples of activities and products include developing and delivering training, education programs and curricula.
- <u>Outreach and communication:</u> Examples of activities and products include speaking and exhibiting at conferences, developing and disseminating information and guidance, and sharing best practices in workplace safety and health.

Alliance Program Goals

- **Promoting the national dialogue on workplace safety and health:** Examples of activities and products include convening or participating in forums and roundtable discussions, and developing case studies for safety and health.

Alliance Program Impact on Workplaces

Results of the Alliance Program include:

- New and updated training resources
- Outreach to employers and employees through speeches and exhibits
- New and updated electronic assistance tools (e.g., eTools)
- Publications and case studies
- Media coverage of the Alliance Program activities

MCEPS Membership

- Open to those engaged in or supporting the Oil & Gas industry.
- Executive Committee
- No Dues, Fees or Expenses
- Promotes safety, health and environmental improvement in the exploration and production of oil & gas.

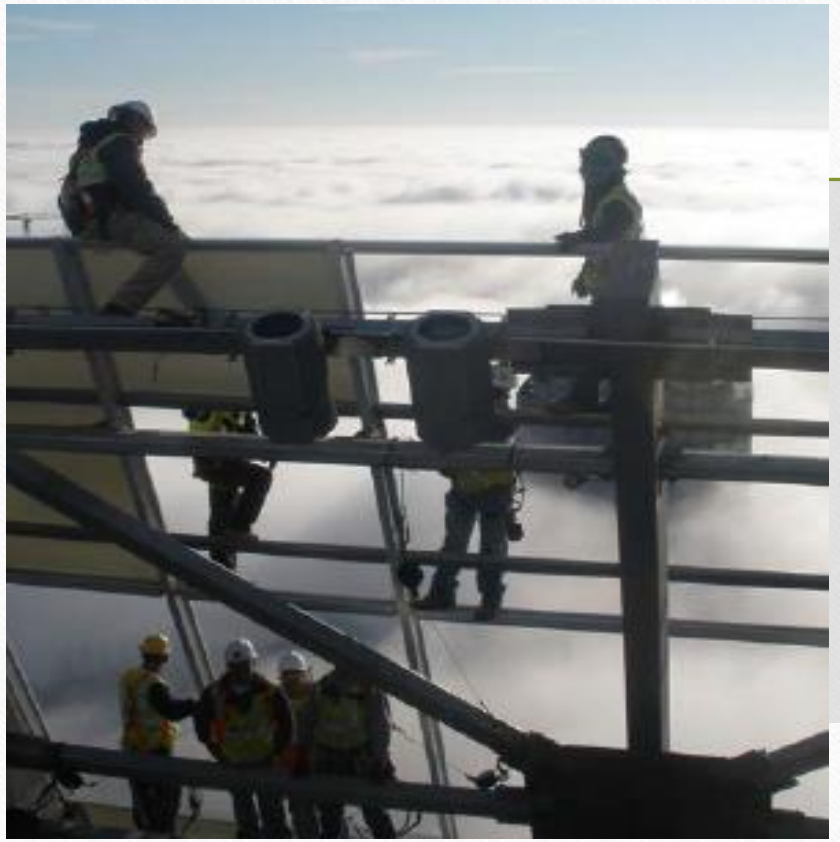
MCEPS Vision:
Incident Free Operations

- Meet periodically to share and discuss safety, health and environmental incidents, best practices and related issues.
- Establish focus groups to address specific issues.
- Work with other organizations, including but not limited to: OSHA, OCC, IADC, API, and EPA.
- Encourages smaller companies, that typically have fewer resources, to join the organization and increase their knowledge of safety and health.

- The MCEPS Network fosters a work environment that relies upon open communication and trust.
- Through the MCEPS Program, OSHA works with an industry committed to safety and health to:
  - Foster networking relationships
  - Information sharing with employers and employees to help prevent injuries, illnesses and fatalities in the workplace.

- OSHA and MCEPS Alliance has proven the merit of business and the government working together toward a common goal of improving employee safety and health in the oil and gas exploration industry.
- The MCEPS Network and this Alliance have allowed employers to build relationships of shared cooperation and trust that have improved the understanding between all parties."

- Monthly meetings with 75 and more attendees
- Free training classes:
  - Command Spanish
  - Safety Culture
- Participation in regulatory committees
  - RP 54



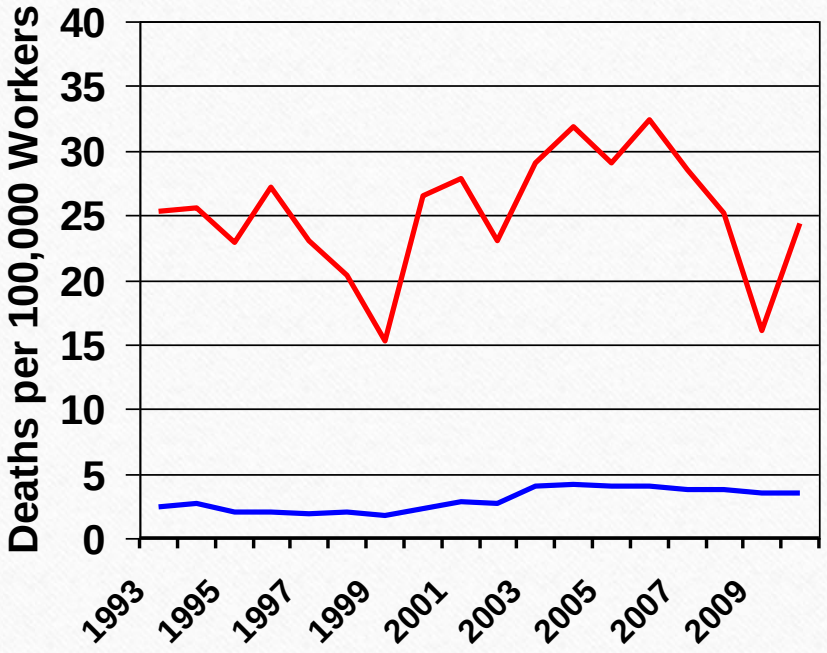
Key Tools

- Enforcement
- Outreach
- Compliance Assistance

COOPERATIVE PROGRAMS: Alliances

- Oklahoma Safety Council
- American Society of Safety Engineers (ASSE, Tulsa and OKC Chapters)
- MCEPS (Mid-Continent Exploration and Production Safety Network)
- Oklahoma Section of the American Industrial Hygiene Association
- Mexican Consulate in Little Rock, AR
- Oklahoma Municipal Contractors Assoc.

Oil Patch Fatality Rate
7 Times National Average



Oil and Gas Extraction

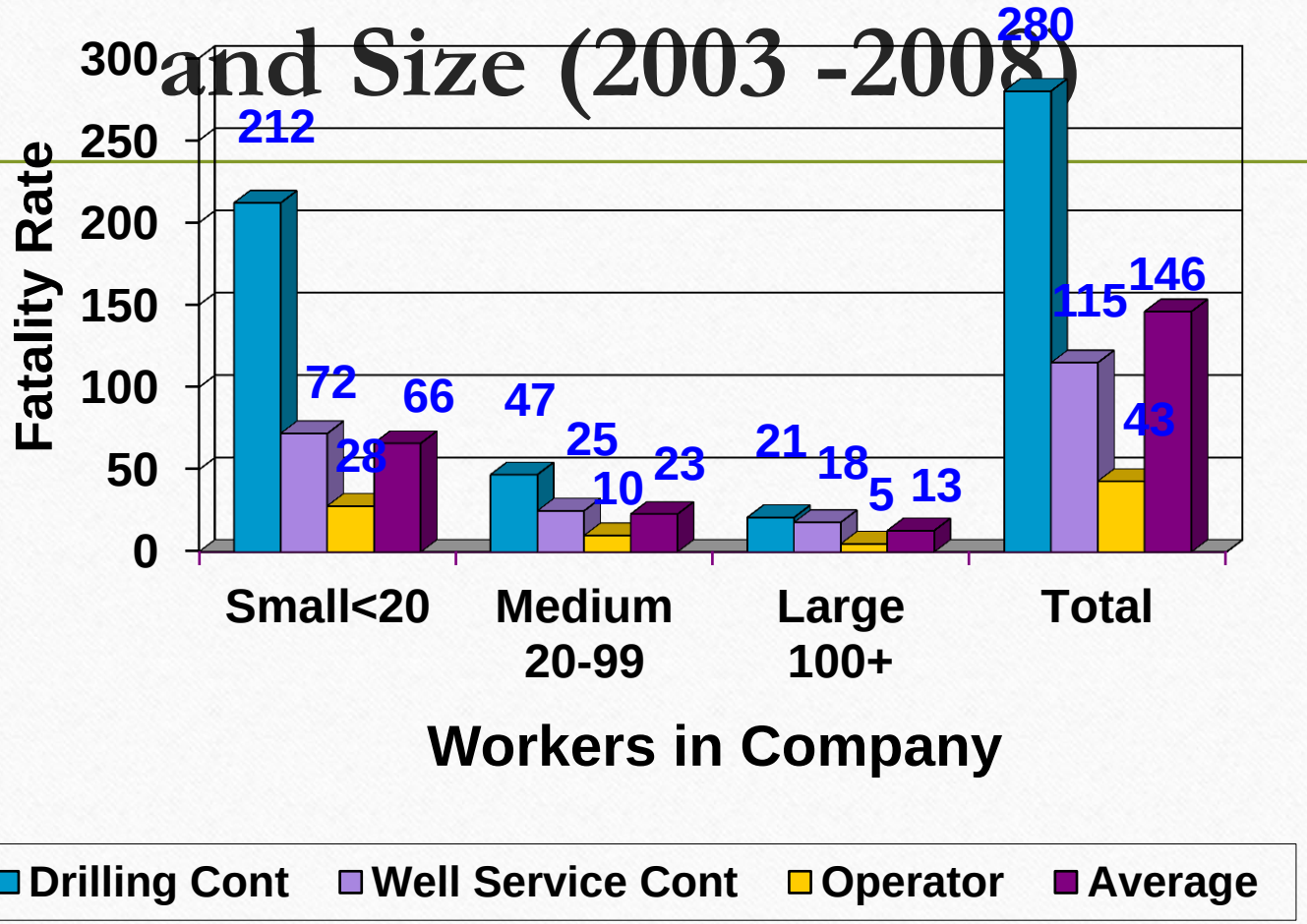
↑

7 Times

↓

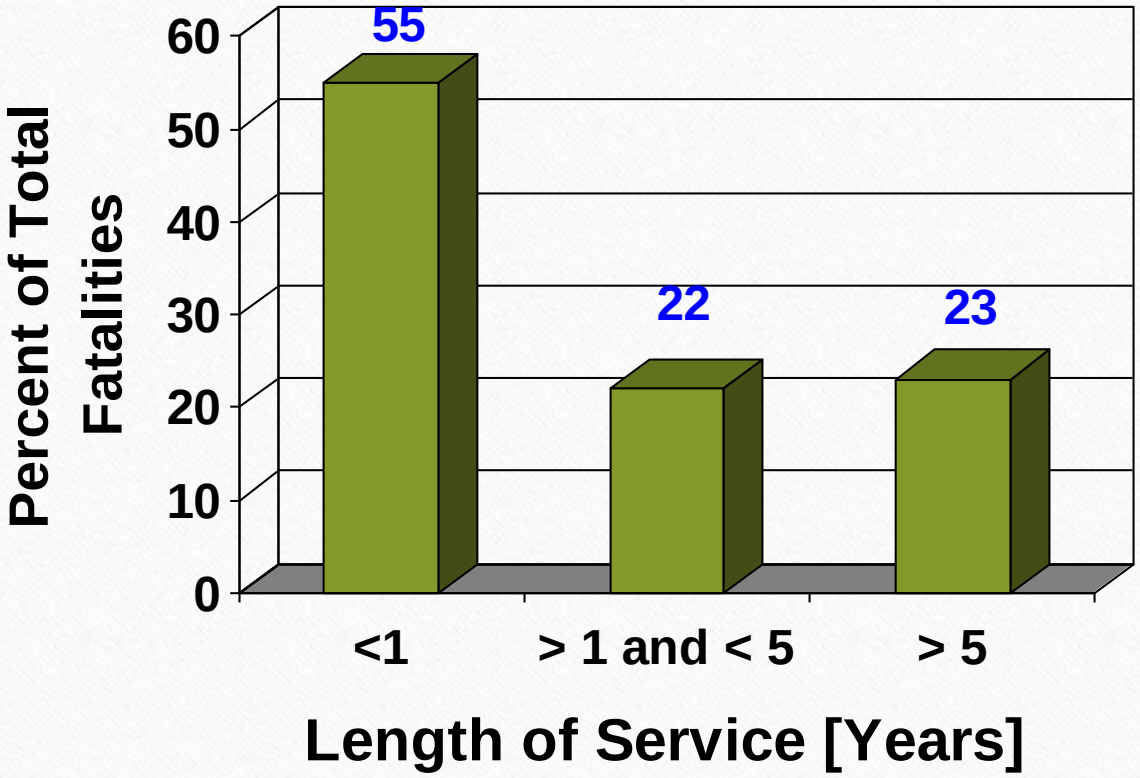
General Industry

Oil Patch Fatality Rate by Company Type and Size (2003 -2008)



Length of Service Prior to Fatality*

397 Fatalities w/Reported Length of Service Data from 2003 - 2008



SAFETY STAND DOWN IDEA

- Stand Downs had been done previously by OSHA, predominantly in the Construction industry
- Dean Wingo, Region IV suggested a stand-down
- Through MCEPS, I asked for their assistance in conducting a voluntary stand-down

SAFETY STAND DOWN IDEA

- The major thing that needed to happen was to educate the industry, especially employees, about what happened in each of the 10 accidents in Oklahoma
  - The why, how, and how to prevent
- Companies could take that information and conduct jobsite inspections and training to eliminate similar hazards

ENFORCEMENT ACTIVITY

- OSHA planned an enforcement campaign for the oil and gas drilling and servicing activity in Oklahoma
- Compliance staff from two area offices in Texas assisted OK staff to conduct inspections
- Approximately 75 inspections were conducted in April 2012

2012 OIL & GAS ACCIDENTS IN OKLAHOMA

- 10 Accidents in Fiscal Year 2012 between October 1, 2011 and April 2012
  - 9 Fatal Accidents
  - 1 Catastrophe (3 employees hospitalized)
- Approximately half-way through FY 2012 concerned about the upward trend
- Previous 3 years has seen a decline in the number of fatalities in the industry

IDEAS FROM PLANNING CALLS

- Advertise that it would be a special meeting through:
  - E-mail blasts (Industry associations, MCEPS list..)
- The message about how each accident happened needed to come from OSHA
- Employees receiving training in the field during stand-down needed to see the Area Director describing each accident
- Video was not copyrighted; companies made multiple copies to use at jobsites
- StandDown video was placed on YouTube

what's in your
TOOLBOX?

SAFETY STAND DOWN 2012
06/21/12
RT: 14:30
DVD
ON THIS DISC:
"SAFETY STAND DOWN" POWER POINT VIDEO
"SAFETY STAND DOWN" PDF DOCUMENTS
"SAFETY STAND DOWN 2012" HANDOUT
"THE HUMAN FACTOR" POWER POINT

TEAMWORK

- Venue was provided by one company, others contributed
- UTA / OSHA Education Center
  - Registration
  - Training manual
  - Web Site for all training and inspection documents
  - Collection of Results (Report-Out Form)
- Professional production company produced the video
- IADC and AESC provided injury and illness data and support.

SPECIAL COMMENTS

- Sitting with his crew and discussing each accident with the slide show was one of the best safety meetings he has conducted.
- Stand-downs were held not only in OK but in TX, ND, AR, PA, KS, and OH
- The discussion of the 10 accidents made it personal and made a connection with their employees
- The stand-down video had a great impact on employees

OSHA Working with Oil & Gas Industry

- Tank Gauging Hazard Alert
- Hot Work Hazard Alert
- Safety Stand-Downs
- Updating OSHA's Oil and Gas eTool

Association of Energy Service Companies

AESC Mission Statement:
A Voice for the Oil & Gas Industry

- 600 Member companies representing over 250,000 individual employees
- 19 Chapters across the USA
- 14 Committees

Changing Industry

- 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, longer hours on location
- >40% of fatalities in transportation incidents.

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

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

Changing Industry

- 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.

Safety Statistics Program

Purpose: develop data that reflects the injury and illness experience of the energy servicing industry

- Enable progress to be measured and comparisons made to other industries.
- Participation is on a voluntary basis.

AESC Well Service Rig Count

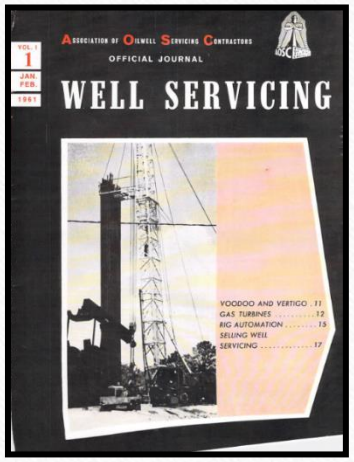
- First published for the industry in 1970, the Rig Count quickly became one of the key industry indicators for the North American oil industry.

- The accuracy of the Well Service Rig Count is determined by the accuracy of the data provided by those operators who report each month.

- Data reflects only workover rig activity

Well Servicing Magazine

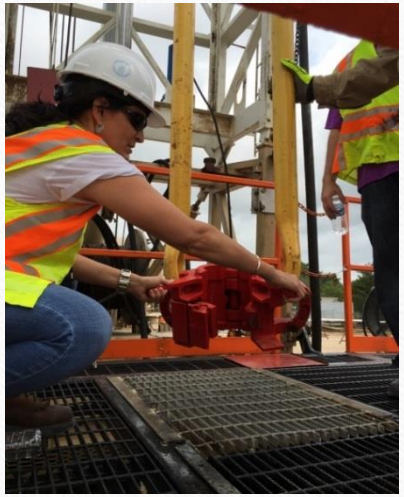
Information Sharing and Educating Regulators and General Public



Then: 1961

Now…

- **AESC signed a National Alliance with OSHA in 2005, the first oil and gas related group to do so, it has since changed to a Region VI Alliance.**
- **We work on various initiatives including training of OSHA inspectors for well servicing sites, review of recommended practices and other initiatives identified by the alliance**



- SafeLandUSA is a volunteer organization comprising major and independent operating companies, contractors, industry associations, and educators with the purpose of promoting a standardized safety orientation for workers in the US Onshore E&P Industry.
- Over 950,000 oil and gas workers have been trained.

Benefits

- Orientation designed specifically for US Onshore E&P Industry
- Consistent EH&S orientation which is industry recognized and widely accepted
- Orientation remains with employee throughout career
- Quality assurance through an audit program and oversight committee
- Eliminates redundancy of multiple orientations for single employee

Emerging Focus Group

Respirable Cyrstalline Silica

- Meetings with industry and OSHA to address concerns
- IH studies conducted with the cooperation of industry
- Recommendations for improvement
  - Engineering controls
  - Administrative controls
  - Training

SILICA FINAL RULE

Effective June 23, 2016

Industries have 1 to 5 years to comply

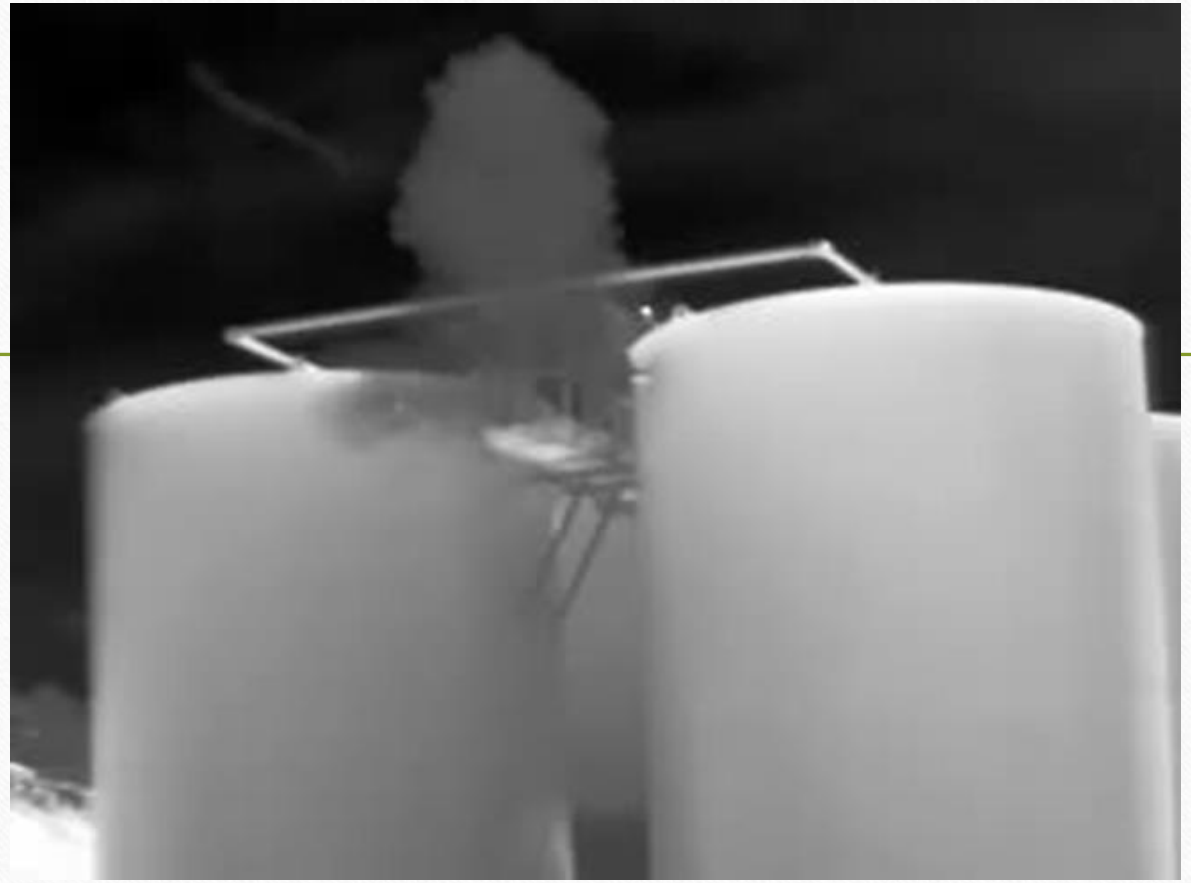
- **Construction- June 23, 2017**
- **General Industry and Maritime – June 23, 2018**
- **Hydraulic Fracturing – June 23, 2018**
  - **Engineering Controls – June 23, 2021**

- **Reduces PEL to 50 mg/m3**
- **Engineering controls, PPE, limit access, written control plan**
- **Medical exams to monitor highly exposed workers**

Tank Gauging

Tank Gauging Activities

- To manually gauge
  - during flowback or regular production
- To collect samples
- To document production rates
- To assess load-out needs



FLIR - Forward looking infrared, thermographic camera that senses infrared radiation

Inhalation Hazards

- Light hydrocarbons, aka Volatile Organic Carbons (VOCs)
  - Benzene, toluene, n-hexane, heptane, pentane, propane, butane, and cyclohexane
- Oxygen deficiency
- Hydrogen Sulfide

TANK HAZARD ALERT

gauging • thieving • fluid handling
how to recognize and avoid hazards

designed by: PEC SAFETY

Opening thief hatches of storage tanks can lead to the rapid release of high concentrations of hydrocarbon gases and vapors. Those may result in very low oxygen levels and toxic and flammable conditions around and over the hatch. Recent reports have documented fires or explosions, and described workers experiencing dizziness, fainting, headache, nausea, and, in some cases, death while gauging tanks, collecting samples, or transferring fluids. **Tank gauging, thieving, and fluid handling can be performed safely with proper precautions.**

hazards that workers can encounter

- oxygen deficiency
- fires & explosions
- chemical toxicity
  - hydrocarbon vapors
  - propane
  - butane
  - benzene
  - hydrogen sulfide (H_2S)

potential effects of exposure

- death
- chronic illness
- flash fire burns
- dizziness
- irregular heartbeat
- irregular breathing
- respiratory irritation
- fatigue
- nausea
- eye irritation
- headache

EMPLOYERS:

Must Conduct Exposure and Hazard Assessments at Worksites to determine needs for:

- Engineering Controls
- Respiratory Protection
- PPE
- Monitoring Device such as:
  - Multi-gas meter
  - Other direct-reading toxic gas meter (benzene)

Must Provide Training to Workers:

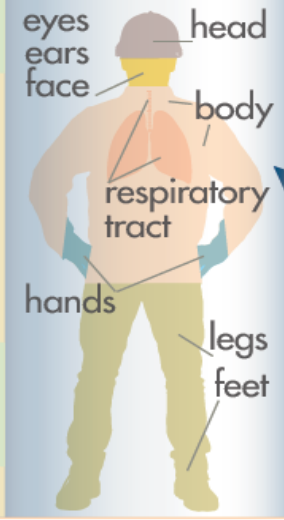
- Hazard Communication
- Lone Worker Policy
- Proper use of PPE and respiratory protection
- Types, use, and limits of respiratory protection equipment as appropriate
- Recognizing ignition sources
- Tank Gauging work practices/procedures
- Emergency Response Plan
  - Procedures for alarm response and site re-entry
- Use and limits of toxic- or multi-gas meter for O_2, H_2S, LEL, and CO

Should Implement Engineering Controls such as:

- Remote Gauging
- Closed Loop Systems
- Auto Gauging
- Sight Glasses/Gauges
- Remote Venting

Verify sub-contractors are following work practices/procedures

PPE protect your



WORKERS:

Your employer has established safety procedures for your protection including a **Hazard Assessment** and Work **Practices/Procedures**

Follow your employer's **Hazard Assessment** and Established Work Practices/Procedures

- **Use** toxic- or multi-gas **meter** provided by your employer as per your training
- **Heed** all **alarms**
- **Stop flow** into tanks prior to gauging, **when possible**
- **Minimize leaning** over open hatches – **stand away**/upwind/crosswind when possible
  - **Inversion**/high humidity/**lack of wind** could **increase danger**
- **Follow** your employer's **"lone worker" policy**
- **Allow tanks to ventilate** after opening thief hatches
- **Evacuate** unsafe work areas and **report immediately**
- **Know the limits** of your **respiratory protection** as provided during employer training
- Immediately **report** any **health symptoms**

Wear PPE as required/provided

Attend Hazard Communication Training

Be Aware of Potential **Ignition Sources:**

- Static
- Cell phones
- Sparks from tools or metal objects
- Open flames
- Non-approved electrical equipment/devices
- Ensure proper grounding/bonding

If you are not sure, STOP the job and ask!

Everyone has the right to STOP work that is unsafe.

Through the OSHA National Steps Alliance, this Tank Gauging Hazard Alert is for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. March, 2015

Under the Occupational Safety and Health Act, employers are responsible for providing a safe and healthy workplace and workers have rights. OSHA can help answer questions or concerns from employers and workers. OSHAs On-site Consultation Program (www.osha.gov/consultation) offers free and confidential advice to small and medium-sized businesses, with priority given to high-hazard worksites. For more information, contact your regional or area OSHA office (www.osha.gov/html/RAmap.html), call 1-800-321-OSHA (6742), or visit www.osha.gov.

YOUR LIFE can change in a SINGLE BREATH or with ONE SPARK.

DEWALT

rd Alert Hazard Alert Hazard Alert Hazard Alert Hazard Alert Hazard

Between 2005 and 2015

85

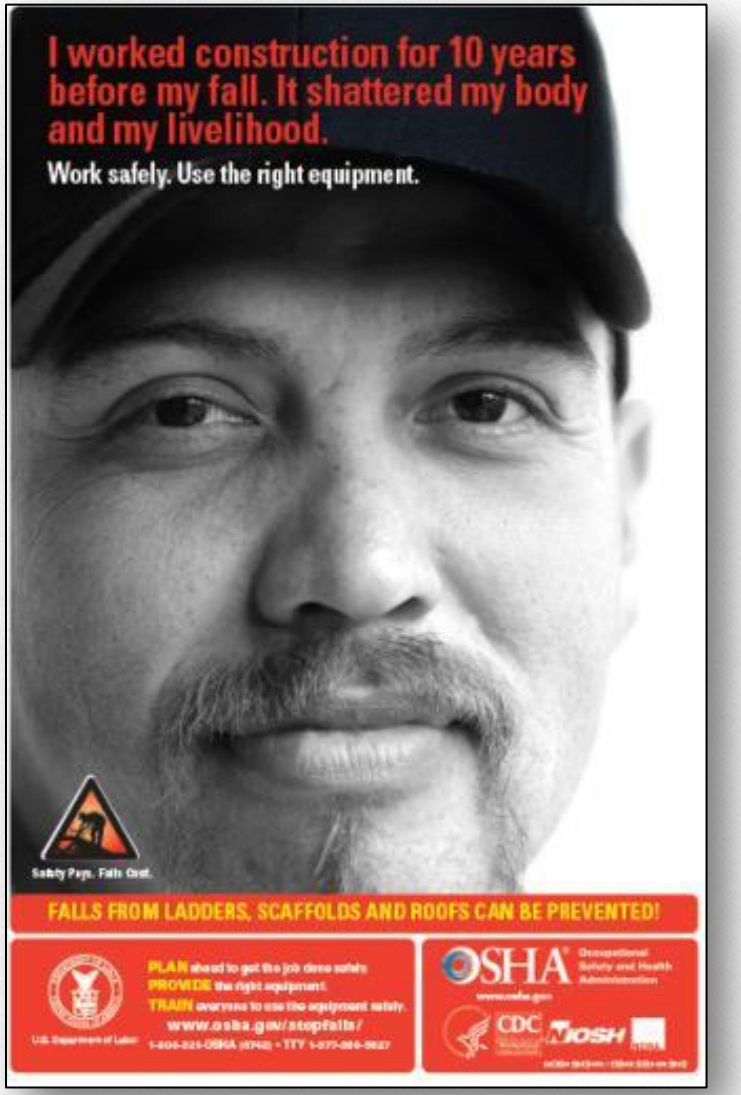
DEATHS due to fires or explosions

including **28** hot work deaths

Fatalities Associated with Hot Work on Oilfield Tanks, Tankers, and other related equipment

Produced fluids, such as crude oil, flowback water, and produced water are brought to the surface, along with hydrocarbon vapors and gases during production operations. These fluids are separated and stored on the production site in tanks which require periodic monitoring and repair. Tanker/vacuum trucks and pipelines are used to transport and/or remove these fluids from the production site.

There are flammable and toxic hazards (e.g. H_2S, benzene) associated with hot work operations (burning, welding, using fire-or-spark producing tools) on permanent and temporary storage and tanker/vacuum truck tanks and other equipment such as heater/treaters, flowback tanks, interconnecting pipes, and produced water tankers which contain hydrocarbon residues.



Fall Prevention Campaign May 8-12, 2017

- Falls are leading cause of deaths in construction — over 1/3 of all construction fatalities
- In 2014, almost 350 construction workers were killed at work from falls to lower levels
- Millions of employers and workers participate in annual Stand-Down to Prevent Falls events nationwide

FALLS STAND DOWN

- Oklahoma Safety Council
- ASSE
- AGC
- MCEPS
- Over 200 Participants Confirmed Statewide

Heat Illness Prevention Campaign

Heat illness sickens thousands

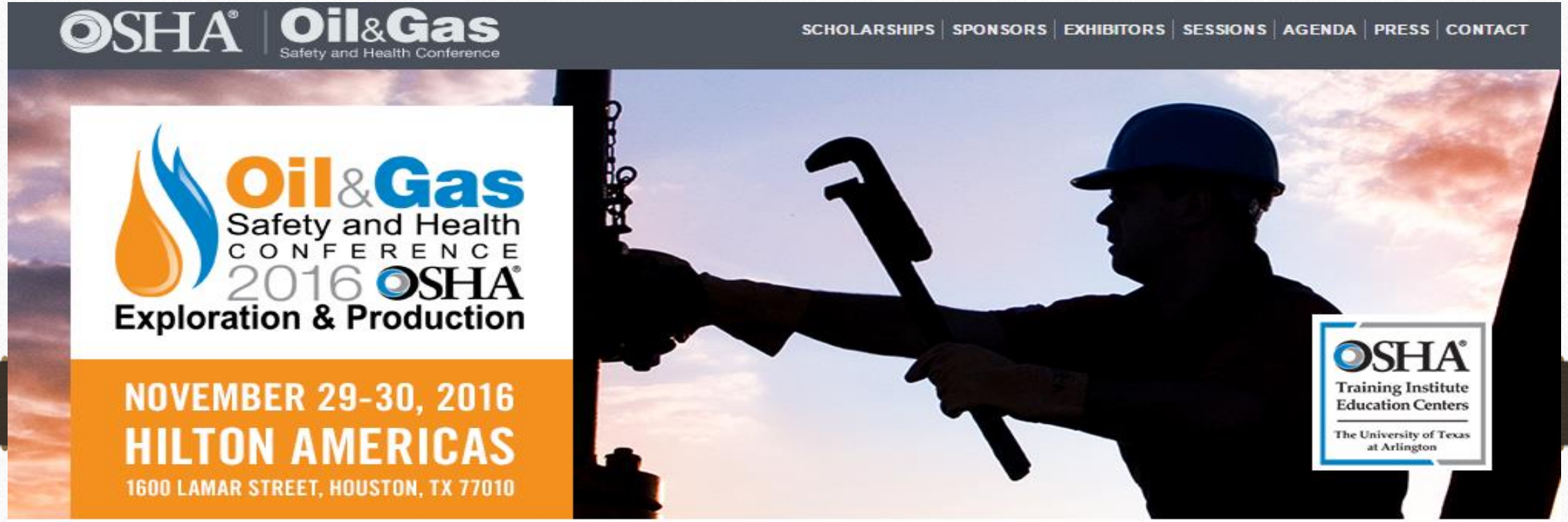
and results in the deaths of
dozens of workers each year

Heat Safety Tool for mobile phones has been downloaded
more than 250,000 times

WATER. REST. SHADE.
The work can't get done without them.

Safe + Sound Campaign

- *Transformational*: Improves workplace culture
- Good for workers and businesses' *bottom line*
- Targets *small and medium*-sized businesses
- OSHA encourages this program for *every* business
- National Safe + Sound Week: June 12-18, 2017



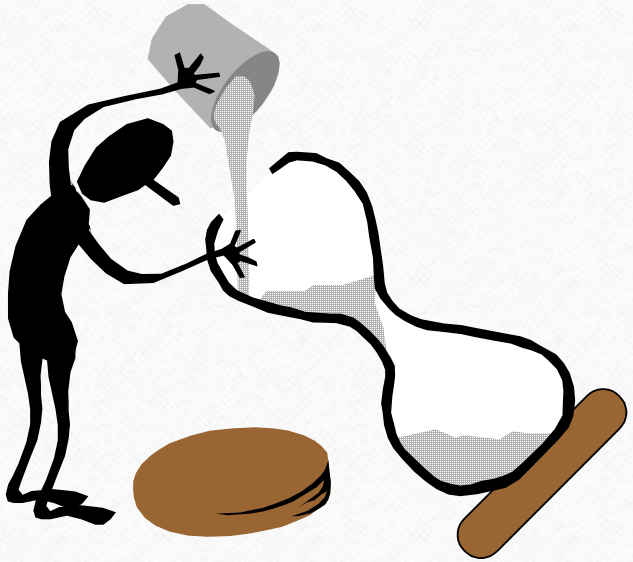
The 2016 Conference has concluded. Thank you to all of our participants for making this year's conference a great success! The breakout presentations are now available here. Please check back for announcements for the 2018 Conference.

Looking Ahead: The Future of the Alliance Program

The Alliance Program Continues to Grow

- Building positive relationships among industry, OSHA and government agencies
- Developing, facilitating and expanding distribution of compliance assistance resources
- Increasing exposure, communication and outreach through print and electronic media; speeches and presentations

Questions???



Thank you…