



The INGAA Foundation, Inc.

LESSONS LEARNED REPOSITORY (LLR) ANNUAL WORKSHOP

February 19, 2019

JW Marriott, Houston, TX



Please silence cell phones and computers



The INGAA Foundation, Inc.

WELCOME AND SAFETY MOMENT

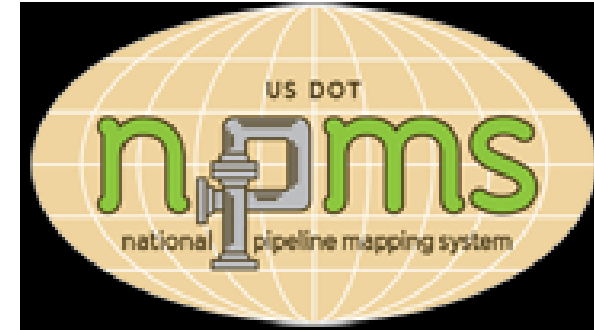
Tony Straquadine, Executive Director

The INGAA Foundation

Call before you dig – April is National Call 811 Month

LLR ID 1678 – Communication Disconnect – Submitted Mapping/One Call system

- Clearing Subcontractor was leveling an access road when they uncovered a buried line marker tape representing a buried gas line.
- The One Call notifications were valid however, the facility owner had not responded to the One Call notification.
- The facility owner was contacted and responded and marked their 10” Poly Gas line.
- Facility owner discovered a “disconnect” between their submitted mapping and the One Call system.
- Fortunately, no injuries or equipment/property damage occurred.



Know what's **below.**
Call before you dig.







The INGAA Foundation, Inc.

LESSONS LEARNED REPOSITORY

YEAR IN REVIEW

Scott Long, Contractor Safety Manager, Kinder Morgan

The LLR User Interface

INGAA Foundation Lessons Learned Repository  Suggestion  Logout

Search Criteria

Search term:

Search by date, from: to:

Categories:

Document ID	Document Title	Originator	Document Date	Naics Codes	Categories	Document Status
1605	Safety Alert - 440 Rig Up - Unloading I-Beam	Cindy Pauley	12/1/2017 9:06:51 AM		Pipeline Components (valves, hoses, meters, etc.)	Active
1604	Swing Radius Safety	Sean Nicholson	11/27/2017 1:53:38 PM	237120	Off-road/Excavation Equipment	Active
1603	Stringing Pipe and Load Securement	Sean Nicholson	11/27/2017 1:36:36 PM	237120	Hazard Identification	Active
1602	Buried Facility Strike	James Upton	11/7/2017 5:51:57 AM	237120	Permit to Work	Active
1601	Fencing Installer Injured in Fall off 5 Gallon Pail	Mike Anderson	10/27/2017 7:14:13 AM		Work At Heights	Active
1600	'Line of Fire' Incidents	Scott Long	10/24/2017 10:55:45 AM		Hazard Identification, Off-road/Excavation Equipment, Walking/working surfaces; stairs	Active
1599	Mat Bridge Failure/Unexpected Equipment Shifting	Sean Nicholson	10/24/2017 10:21:24 AM	237120	Hazard Identification	Active
1598	Near Hit - Incorrectly Marked Live Line	Sean Nicholson	10/24/2017 10:11:50 AM	237120	Line Strike	Active
1597	Good Catch - Hydro-Test/Confirmed Yield Strength of Components	Sean Nicholson	10/23/2017 8:37:44 AM	237120	Pressure Testing	Active
1596	Fuel Cap Securement	Sean Nicholson	10/19/2017 12:54:44 PM	237120	Hand Tools	Active

Page size: 614 items in 62 pages

View INGAA Foundation Lessons Learned [Terms and Conditions](#) or [Legal Recommended Practices](#).
If you wish to receive email notifications [Click Here](#)



What is the Lessons Learned Repository?

The Lessons Learned Repository (LLR) is a secure, members-only anonymous database created in 2012 by The INGAA Foundation members to share lessons learned and best practices to improve safety across the industry.

- **Secure:** Hosted by third party to insure maximum security and operability
- **Anonymous:** legal firm developed legal guidance and terms and conditions to guarantee confidentiality
- **Quality:** Each entry reviewed and approved by subcommittee of Safety and Quality
- **Productive:** 570 entries since the program's inception



LLR Newsletter

- Began August 2017 with intention of keeping LLR present in mind of membership
- Incremental Improvements
 - Engagement Tracking
 - Optimizing for Mobile

1st and 2nd Quarter, 2017

LESSONS LEARNED REPOSITORY QUARTERLY REVIEW

As August came to a close, the INCAA Foundation marked six months since its LLR workshop in late February. The momentum from that day hasn't let up, with 73 submissions since then. Here's how those submissions break down by category:

Category	Count
Hand Tools	12
Hazard Identification	25
Hot Work	1
Line Strike	2
Lock Out / Tag Out	1
Excavation Equipment	5
PPE	4
Portable Equipment	1
Pressure Testing	1
Quality of Materials, Technology	1
Transportation	15
Working Surfaces	1
Work At Heights	1

Feature Lesson Learned

Thanks to the following members who have submitted since March:

- Barnard Pipeline
- Cheniere Energy
- Domion Energy
- Henkels & McCoy
- Michels Corporation
- National Fuel Company
- Pacific Gas & Electric
- Price Gregory International
- Shaw Pipeline Services
- Snelson Companies, Inc.
- United Piping, Inc.

Ready to submit a lesson? [Visit the Repository](#)

Questions, comments, ideas? Email [llr@ingaa.org](#) or visit us on the web at [www.ingaa.org/llr](#)

September 2017 - January 2018

LESSONS LEARNED REPOSITORY QUARTERLY REVIEW

The 2018 Lessons Learned Workshop is right around the corner; mark your calendar for February 27; we have a line-up of Foundation member panelists who will present on their submissions to the Lessons Learned Repository, followed by interactive discussions on the topics. Panel topics include Hazard Identification's Impacts on Safety & Quality, Lessons Learned from Vehicle Backing Incidents, and Lessons Learned from Line Strikes and Severe Incidents. There will also be other timely topics presented, exploring both practical and regulatory subjects [see the full agenda here](#).

In addition to a line-up of great panel topics and other presentations, the LLR Committee has invited nationally-recognized safety speaker Dale Lesinski to give his signature presentation, "Safe 4 the Right Reasons." This presentation explores why rational people put themselves at risk, marrying the art and science of safety management.

Dale is the VP of Sales & Training for Dival Safety. He has been a keynote speaker at the National Safety Council, OSHA, VPPPA Conferences, and numerous regional safety associations. He also frequently guest lectures at universities across western New York. [Read Dale's full biography here](#).

Dale Lesinski speaks at a conference.

Feature Lesson Learned

Entry #1607 — "An employee was tasked with using a concrete vibrator to vibrate down wet concrete that had just been poured into a 1' 1/2" concrete form. The employee was trying to vibrate around a hard to reach area in the center of the pad, and had to reposition himself inside part of the form set in order to complete his task. When he entered the form set, he stepped his right foot..." [Read more](#)

Thank you to the following members who have submitted since August:

- AECOM
- Alliance
- Bi-Con Services
- Bond Brothers
- Cheniere Energy
- Domion Energy
- Henkels & McCoy
- Interstate Energy Company
- Kinder Morgan
- Mears Group
- Michels Corporation
- National Fuel Gas
- Shaw Pipeline Services

2017 WRAPPED

As 2017 comes to a close, the INCAA Foundation marked six months since its LLR workshop in late February. The momentum from that day hasn't let up, with 73 submissions since then. Here's how those submissions break down by category:

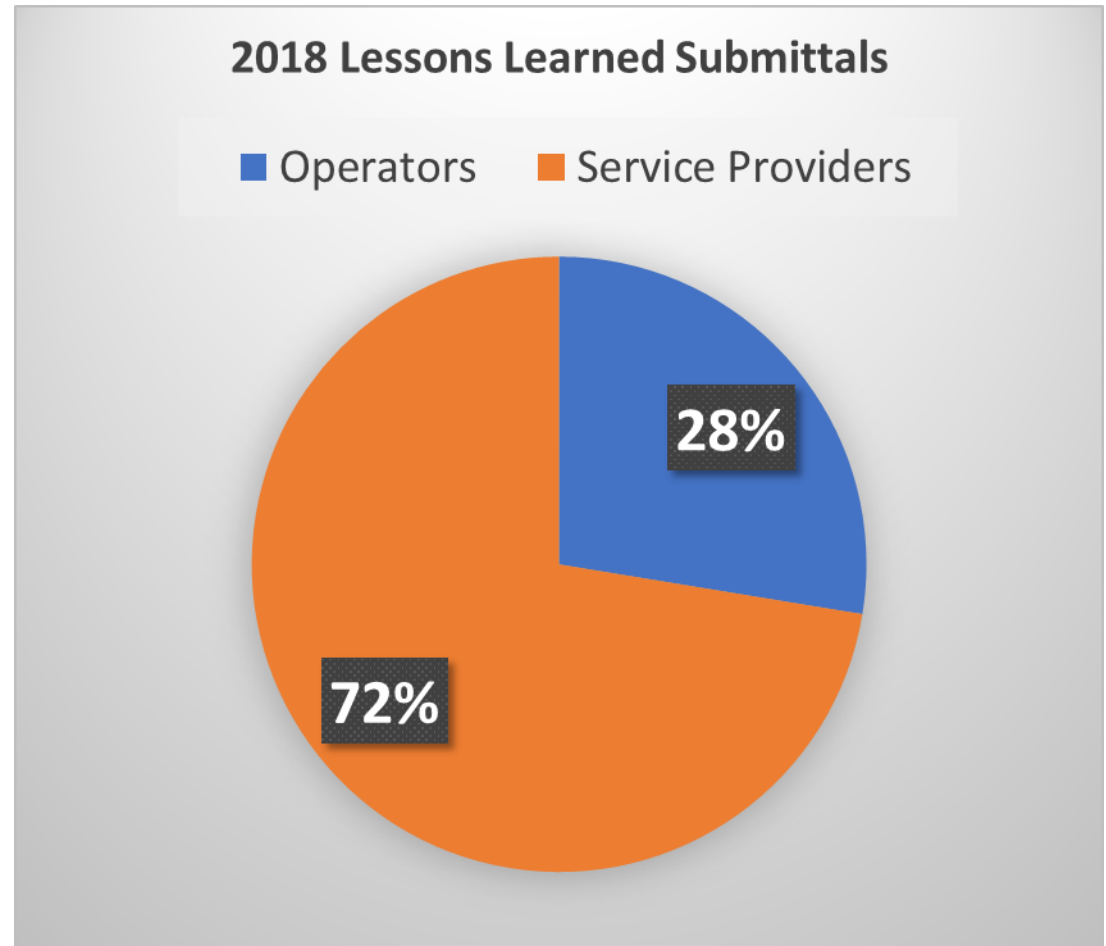
Category	Count
Hand Tools	12
Excavation Equipment	7
Other	32

Ready to submit a lesson? [Visit the Repository](#)



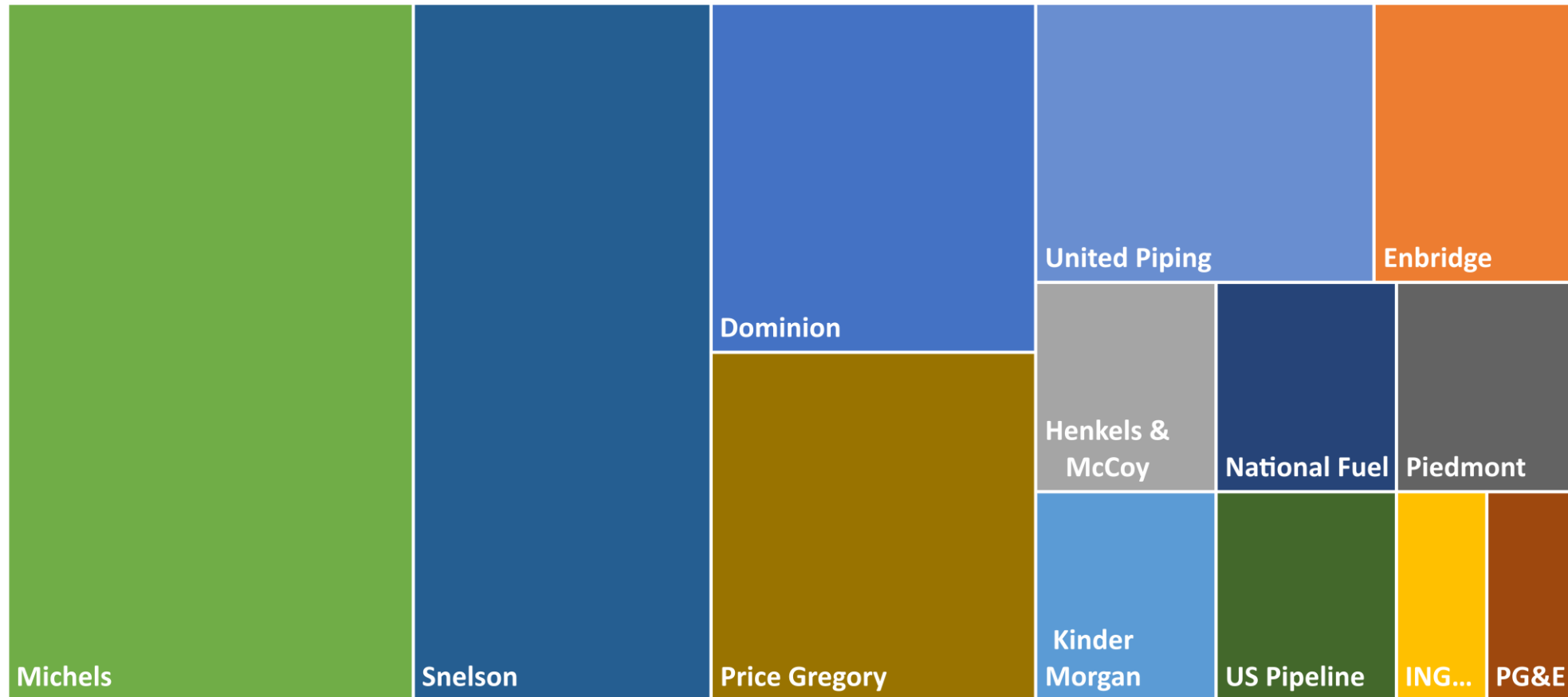
Lessons Learned – Looking Back at 2018

- 57 Total Submissions in 2018
 - 129 Submissions in 2017
 - 56% Decrease
- 1 Submission in January 2019

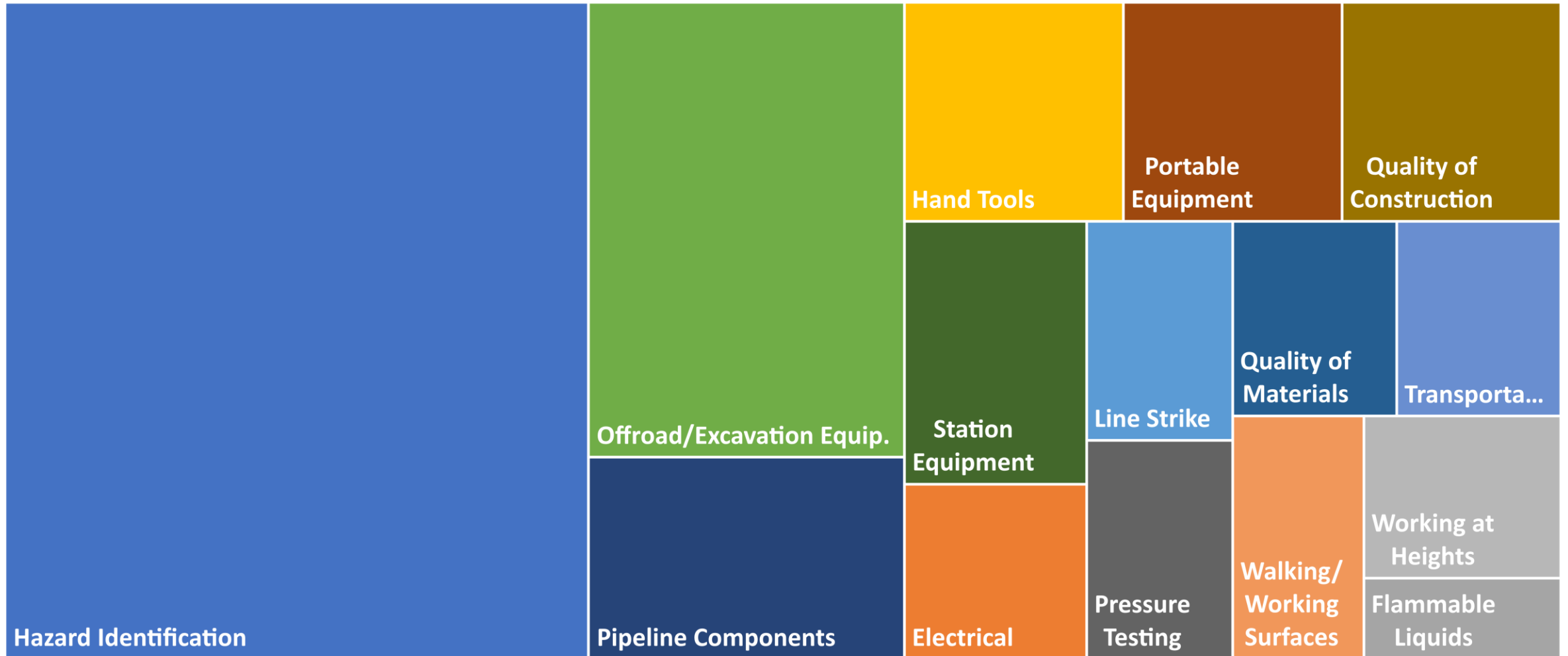


2018 LLR Submittals by Company

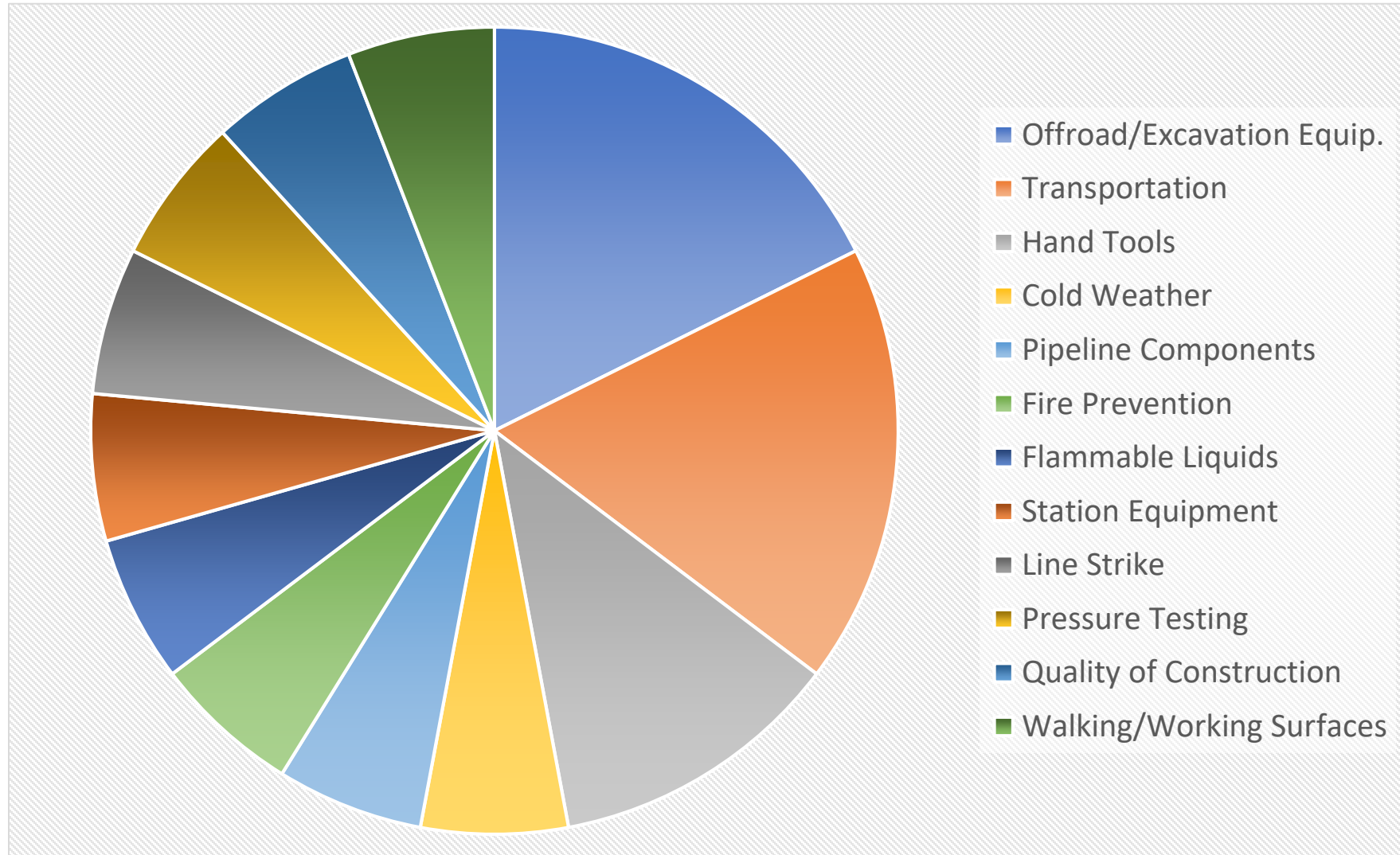
- Dominion
- Enbridge
- Henkels & McCoy
- INGAA
- Kinder Morgan
- Michels
- National Fuel
- PG&E
- Piedmont
- Price Gregory
- Snelson
- US Pipeline
- United Piping



Submittal Categories



Details within Hazard Identification Category



Outlook for 2019

- Thank you for everyone who has submitted to the LLR!
- Expand into Quality Issues
- Restarting the LLR Newsletter and Communications
- LLR Interface Enhancements



How INGAA Foundation Members are Using the LLR to Improve Safety and Quality

- *Moderator*

- **Mike Istre**, Project Manager, The INGAA Foundation

- *Panelists*

- **Mike Anderson**, General Manager – Safety, National Fuel Gas
- **Sean Nicholson**, Vice President of HSE, Michels Corporation
- **Mark Hereth**, Managing Director, The Blacksmith Group



Operator's Perspective



INGAA Foundation Lesson Learned – Load Lifting

INGAA Foundation members share lessons learned for the purpose of improving safety in the industry. Sometimes policies and procedures represented in the lessons are different than our own. Always consult the appropriate NFG procedures for the proper work methods.

Supervisors: *Communication failure was a contributing factor in the event described below that could have resulted in a fatality. Read the description of the event to your team, then ask them to describe the communication that should have occurred between the workers in the area prior to the task.*

Description of Event:

While lifting equipment from a trailer using lifting chains, without direction from the designated signal person, the operator unexpectedly lifted the load to tighten the slack. As a result, the suspended load struck an I-beam on the outside edge of the trailer. The I-beam was knocked off the trailer and struck a worker climbing down an access ladder next to the trailer. The I-beam struck the worker on the ankle/foot causing a fracture.



Causes or Contributing Factors:

- Excavator operator moved load without being provided a signal to do so
- Improper configuration of load on trailer
- Securement removed from entire load instead of only equipment being unloaded at the time
- Load not assessed for stability prior to unloading
- Improper ladder placement
- Cargo Management Plan not followed for unloading material using lifting equipment
- Documents for Plan not conveniently located onsite

Immediate Corrective Actions:

- Shut down all work activities, secured incident location, notified concerned parties
- Generated/distributed safety communication summarizing preliminary incident investigation results
- Reviewed following topics with all employees on the project:
 - Cargo Management procedure (equipment lifting/rigging)
 - Appropriate Rig-up sight work plans
 - Enbridge Spotter/Operator "Where Do I Stand" Training
- Adopt and implement the Cargo Management Plan on all loading/unloading activities with heavy equipment

Supervisors: *Ask your team to identify work activities they perform that require precise communication. Ask them to describe examples of communication techniques they use to ensure safety.*



INGAA Foundation Lessons Learned – Improper Tool/Equipment

INGAA Foundation members share lessons learned to improve safety in our industry. Some procedures referenced might be different than our own. Always consult the appropriate procedures manual for clarification.

Supervisors: Have someone in your work group read the scenario below then ask your team how they would respond if faced with a similar situation. After your discussion, have someone read the consequences of the poor decisions along with the root causes and lessons learned.

Scenario

Prior to pouring pillar supports, a crew used an auger drill rig. Two wire ropes connected to one hook on the drill rig and on each side of the casing (creating a triangle) were used to pull the casing out of the hole as they poured concrete. Due to the angle formed with the wire rope, a “squeezing” effect was created, pulling inward on the casing walls. The pressure/squeezing was affecting the casing and the rebar inside. The crew determined the need for a spreader bar to keep the wire rope pulling vertically on the casing. The crew did not have a spreader bar at the work location so they improvised. In place of a spread bar (correct tool) the crew, led by the supervisor, used a 24” long piece of 2” x 4” lumber as a spreader. It was cut to length and placed between the two wire ropes to prevent the wire rope from squeezing the casing. The crew resumed pouring concrete and lifting the casing.

Consequences of Poor Decisions

As the crew pulled the casing out of the hole, pressure on both wire ropes quickly, and without warning, split the 2” x 4” lumber length-wise creating a projectile that struck an employee in the face. The employee received first aid on site before being transported to a local medical facility for further treatment.

Root Causes

- Supervisor and crew placed progress ahead of safety
- Supervisor and crew improvised; worked without the proper tool
- Crew members failed to initiate their Stop Work Responsibility; some thought it was unsafe but failed to speak up

Lessons Learned / Corrective Action:

- An engineered spreader bar adequate for the task was obtained and utilized
- Personnel were retrained in rigging, Stop Work Authority and hazard identification
- A Safety Alert was distributed to others who perform similar work

Supervisors:

Ask your team members (1) what did the crew have to gain by utilizing the improper equipment? (Answer - save time), (2) what would the Company have wanted to workers to do? (Answer – get the proper tool). The Company was willing to take a 5 minute job, turn it in to a 30 minute job and pay the workers to do so for their own safety. But workers on the job site chooses to take an unnecessary risk that could have resulted in a serious injury or fatality. For what? To save a few minutes of time.

Lessons learned:

- (1) Always use the proper tool or equipment for the job
- (2) When you see something unsafe, speak up 4 the Right Reasons



Rigging setup



Placement of the 2x4 wedged between the wire rope



The actual piece of wood that struck the worker in the head/face



Operator's Perspective



INGAA Foundation Lesson Learned - Worker Struck by Backhoe Bucket

INGAA Foundation members share lessons learned for the purpose of improving safety in the industry. Procedures referenced in the document might be different than our own. Always refer to the appropriate National Fuel operating procedures when performing work for National Fuel.

Scenario

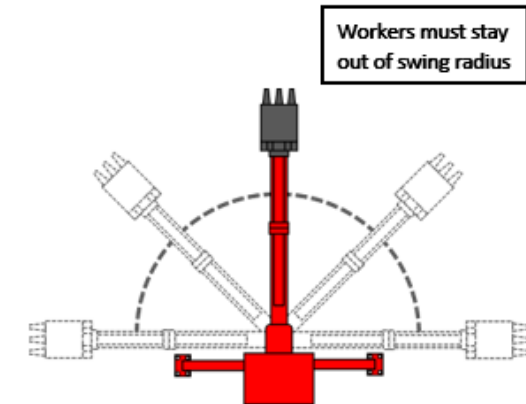
An operator using backhoe and a second employee serving as a spotter were locating a buried 4" electric conduit. Upon unloading a bucket of dirt in the spoil pile, the operator attempted to move the boom back towards the excavation. The controls did not respond properly so the operator depressed the control lever further to the right. This caused the boom to jerk and rapidly move toward the spotter. The spotter was struck on the right side of his head and shoulder by the bucket of the hoe. He was knocked to the ground but did not lose consciousness. He was transported to a local hospital for evaluation. The equipment was red tagged until a manufacturer's mechanic could complete a thorough inspection.

Contributing Factors/Lessons Learned

- Failure to inspect equipment prior to use (i.e. excavation equipment, aerial lifts, cranes)
- Improper equipment operation - machine being operated at idle speed which causes hesitation in hydraulic controls; operating at full throttle allows normal movement of boom and bucket
- Failure to establish controlled access zone w/barricading of equipment's swing radius
- Allowing employee in the swing radius of equipment while in motion

Recommendations to Prevent Recurrence

- Ensure all equipment is thoroughly inspected prior to use
- Ensure operators understand proper operation of equipment prior to use
- Establish a controlled access zone around swing radius of equipment
- Ensure employees only enter the controlled access zone when equipment operation ceases
- Prior to workers entering controlled access zone, equipment operator must ground the bucket, remove his hands from the controls and raise his hands in the air communicating to workers on the ground that it is safe to enter the controlled zone
- Supervision/management conduct spot checks to ensure compliance with the above



Supervisors: Review this incident with your team. Ask any who have experienced a similar injury or close call to share their personal lessons learned. Questions for group discussion: (1) Why do you think the spotter was standing in the swing radius? (2) Why do you think the operator didn't instruct the spotter to move to a safe location? (3) How many other workers do you think witnessed this unsafe act without speaking up? Discuss "Stop Work Responsibility" and the need to serve as our brother's keeper "4 the Right Reasons."



How INGAA Foundation Members are Using the LLR to Improve Safety and Quality

- *Moderator*

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Benefits of LLR – Contractor view

Benefits of using LLR:

- As a contractor we are able to learn from others that perform the exact same work.
- Literally a library of Toolbox topics and safety moments
- Promotes positive communication within the industry

Don't forget to submit



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The INGAA Foundation's Construction Safety & Quality Guidelines (CSQG)

What are the guidelines?

- Consensus guidelines prepared by a multi-company cross-section of teams of experts from the INGAA Foundation.
- Safety and Quality guidance documents on many topics related to pipeline construction.
- Endorsed by the INGAA Foundation.
- Reviewed and adopted by the boards of the Pipe Line Contractors Association (PLCA) and the American Pipeline Contractors Association (APCA).

Guideline Development is under the direction and oversight of the Safety and Quality & Integrity Committees.



How are the LLR and CSQG Related?

- Goal #1
 - To improve the safety performance across the industry resulting from the sharing of **best practice/safety-related information**.
- Goal #2
 - To **disseminate the information** in an appropriate venue. Spread the word to maintain awareness and enhance employee and worker safety in the office or on the job.

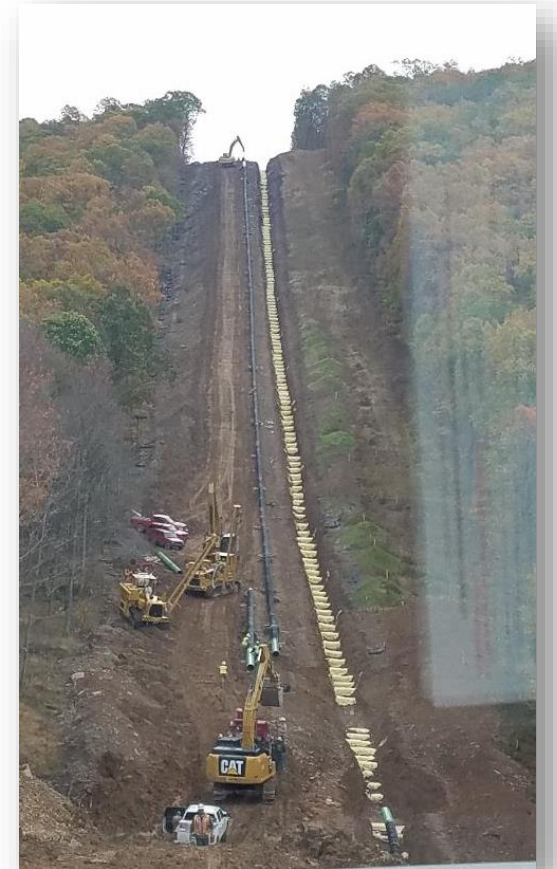
With each project or event, there is a lesson learned or a best practice that can benefit the parties involved, as well as the industry.



Current Inventory of Guidelines

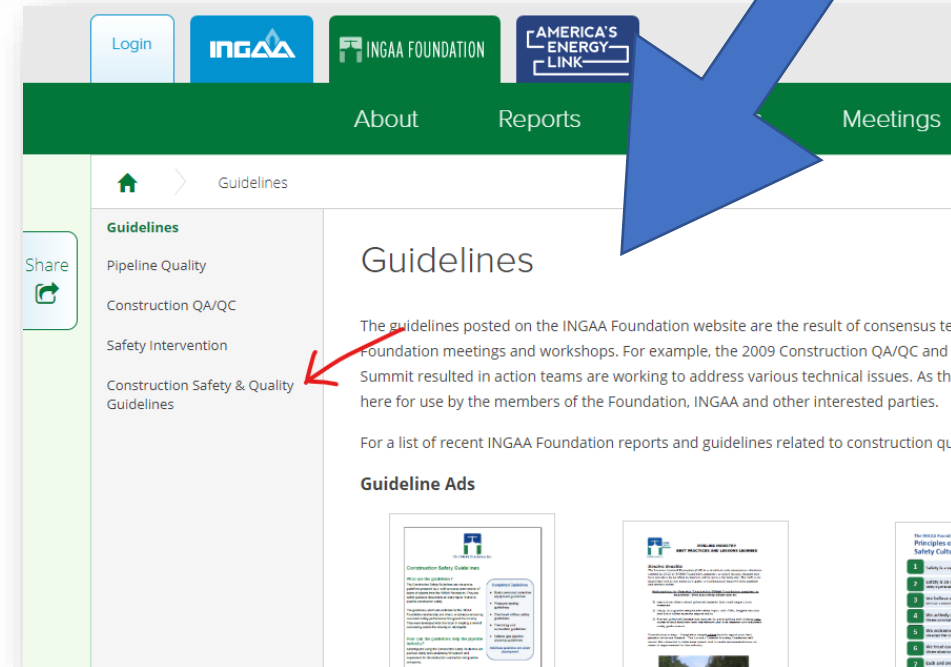
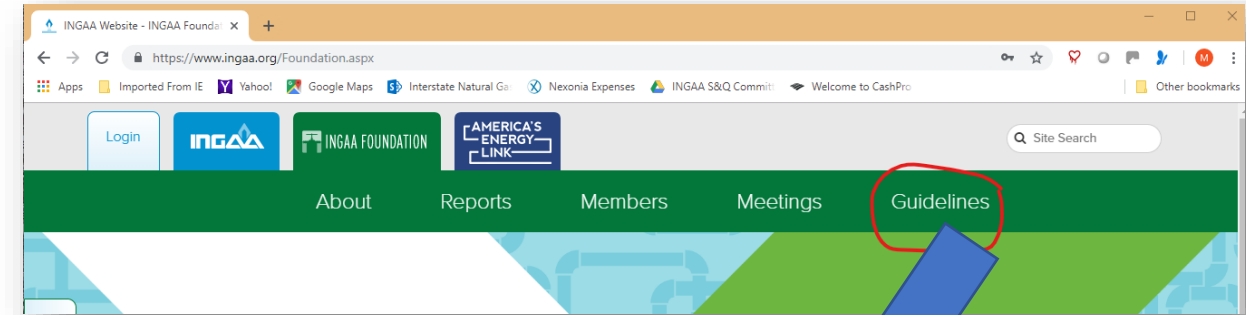
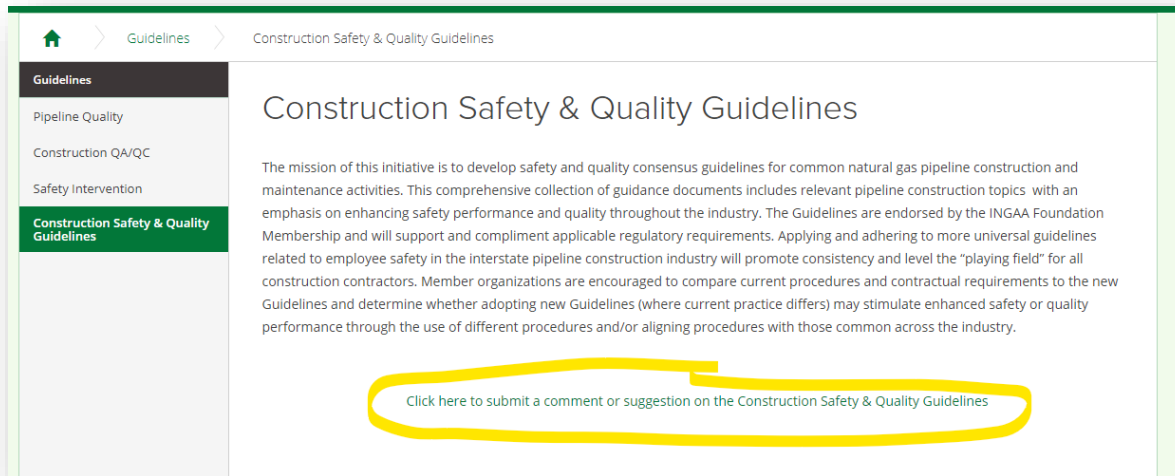
There are currently 20 guidelines available and free to download. Topics include:

- Basic Best Practices:
 - Personal Protective Equipment
 - Preparing Job Safety Analyses (JSA)
 - Vehicle (Traffic) Safety
- Specialized and Advanced Construction Practices:
 - Steep Slope Construction
 - Establishing Quality Metrics
 - NORM Guidelines
- Also now include non-construction, but related items:
 - Guidelines for PHMSA Inspections on the ROW
 - Guidelines for Onsite Protests



How to access the guidelines:

- Visit <http://www.ingaa.org/Foundation.aspx>
- Click on the Guidelines tab, on the top of the Welcome page
- Click on the Construction Safety Guidelines' link
- Submit comments or suggestions via the link on the center of the page



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Ad-Hoc Council on Quality

- Council chartered at August 2018 Foundation Executive Committee (EXCO) Meeting
- To address recurring issues with materials and construction quality
- Mark Hereth, Chairman
- Operators and Contractors, including Past Chairs
 - Dick Keyser, Boardwalk
 - Larry Lawrence, Quanta
 - Richard Prior, TransCanada
 - Dhamo Dhamotharan, AECOM
 - Craig Meier, Sunland
 - Rob Riess, Henkels and McCoy
 - Doug Evans, Gulf Interstate



Quality Issues

- Materials
 - Line pipe with material strength significantly below grade
 - ERW line pipe with low toughness long seam
 - Valves and Fittings with material strength significantly below specification
 - Valves and Fittings with improper alloys
- Construction
 - HDDs with large volume inadvertent returns
 - In-service failures on newly installed pipe on steep slopes and the base of slopes
 - Failures of girth welds during hydrostatic tests (particularly at tie-ins)
 - Line pipe damaged in handling, backfilling and grading
 - Notification of public nearby hydrostatic test section





Pennsylvania stops construction 'egregious' violations



Council Developed Recommendations for EXCO

- Continually emphasize completed work products on material and construction quality
- Emphasize the value in engagement with CEPA Foundation and PRCI, as well as API, AOPL and AGA
- Provide input for Quality and Integrity and Safety Committees
 - Including the Spring and Fall Pipeline Construction Safety Roundtables
- Provide members with topics to consider in developing project proposals for Spring Planning and Studies Process



Recommendations

Continual

- Reemphasize completed projects – INGAA Foundation and PRCI
- Coordinate with CEPA Foundation and PRCI, as well as API, AOPL and AGA

Higher Priority

- Roundtables
 - Steep slope construction
 - Including clean-up and reclamation practices
 - Lowering-in and welding
 - Stress-free welds
 - Steelmaking and pipe manufacturing
 - Hydrostatic testing in populated areas
 - Build off Safety Committee update in 2018
- Common Specification
 - FBE Coatings on Girth Welds



Recommendations

Lower Priority

- Roundtables
 - Horizontal directional drilling
 - Planning, Preparation, and Installation control
 - Backfilling and restoration to protect line pipe and appurtenances
- Common Specification
- Increase engagement in key standards developing efforts; API 5L for Line Pipe and MSS SP75 for fittings
- Consider the value of producing videos or animations of certain key construction methods to emphasize their importance.



Questions? / Discussion





The INGAA Foundation, Inc.

BREAK

Please return in 10 minutes



The INGAA Foundation, Inc.

TRANSFORMATIONAL LEADERSHIP: CREATING SAFE, HIGH PERFORMANCE WORK TEAMS

Bruce Bolger, CSP, CHMM

President, Bruce Bolger Company, LLC

Video: “Gettysburg”



Today's Objectives:

- Identify “critical skills” which improve influence/safety
- Analysis several short videos – “interactive exchange”
- Understand the “impact” of our words and actions
- Raise levels of awareness on daily interactions



“It’s Your Ship” – By Captain Michael Abrashoff, US Navy

Top five reasons people leave

1. ?

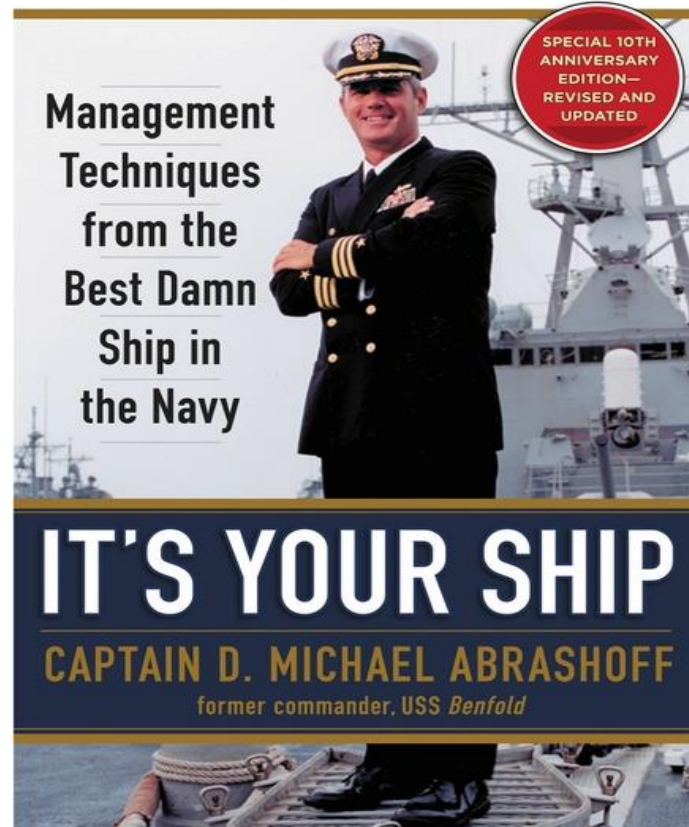
2. ?

3. ?

4. ?

5. ?

The Classic *Businessweek*, *Wall Street Journal*, and
New York Times Business Bestseller



“It’s Your Ship” – By Captain Michael Abrashoff, US Navy

Top five reasons people leave

1. Not being treated with respect or dignity
2. Being prevented from making an impact
3. Not being listened to
4. Not rewarded with more responsibility
5. Pay



USS Benfold Results:

- Performance Ranking – from #297 to #1
- Sailor Retention – went from 8% to 100%
- Serious Injuries - went from 31 to 2
(OSHA rate of 10 to .62)



“Influence”

Video: “Change Your Words Change your World”



“Critical Skills”

- Understanding Emotional Intelligence
- How We Communicate



Emotional Intelligence (EI)

Definition:

understanding of feelings: personal attributes that enable people to succeed in life, including self-awareness, empathy, self-confidence, and self-control

Encarta® World English Dictionary [North American Edition] © & (P)2009 Microsoft Corporation. All rights reserved. Developed for Microsoft by Bloomsbury Publishing Plc.



Video: “Cumberland Little League Baseball Team”

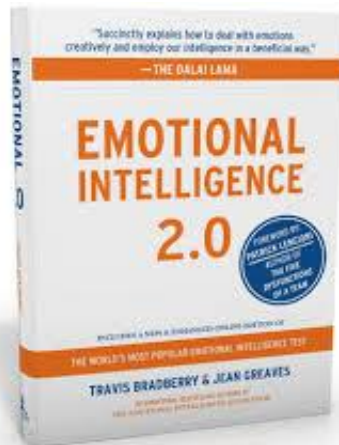


The Case for Emotional Intelligence (EI)

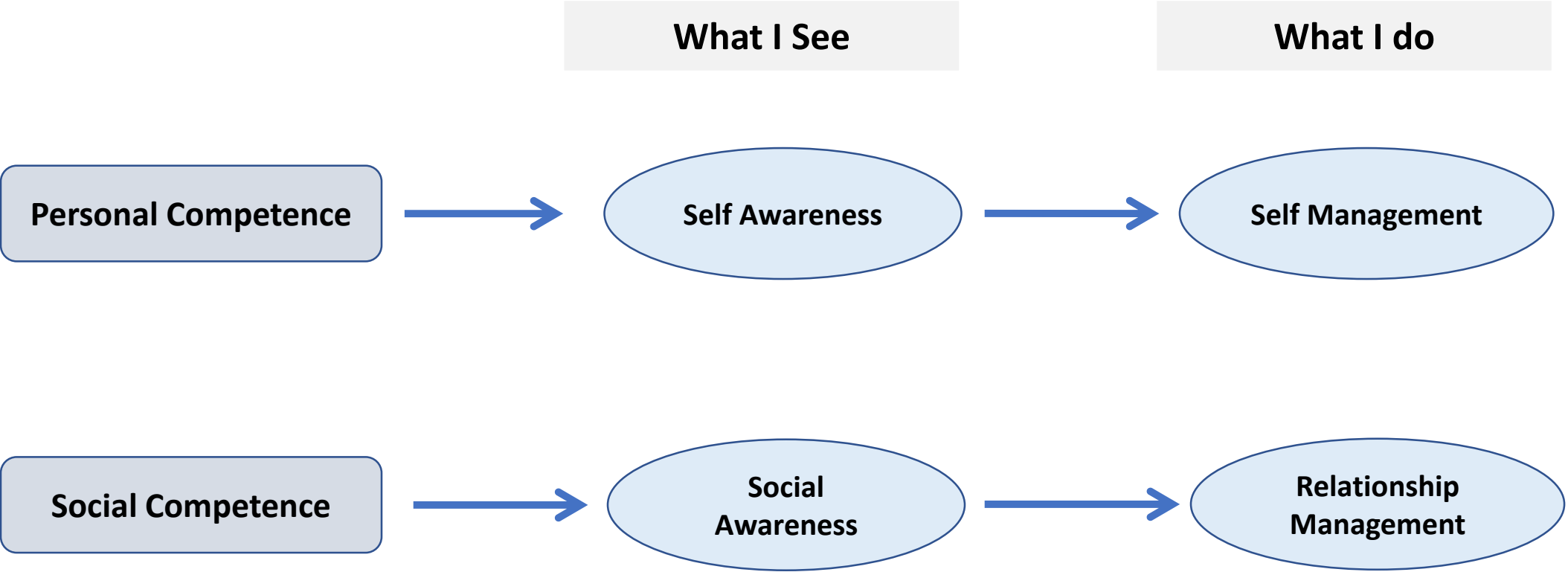
“Emotional intelligence is so critical to success that it accounts for 58% of performance in all types of jobs. It’s the single biggest predictor of performance in the workplace and the strongest driver of leadership and personal excellence”

Travis Bradberry and Jean Greaves

“Emotional Intelligence 2.0”, 2009



What Does Emotional Intelligence Look Like?



Travis Bradberry and Jean Greaves
Emotional Intelligence 2.0, 2009 Talent Smart



Personal Competence Video



Social Competence Video:



“If there were ever numbers associated with body language and nonverbal communication:

55% of communication is body language

38% is the tone of voice

7% is the actual words spoken



Final Exam: “Gettysburg”



Review.....

- Be Strategic- Choose you words carefully
- Know your strength's, but better yet identify those underlying traits that could be sabotaging your career
- Success is about helping others succeed
- See the world from other peoples perspective
- EI = Success at work and at home





The INGAA Foundation, Inc.

LUNCH

Please return in 1 hour



The INGAA Foundation, Inc.

FIT FOR DUTY SAFETY MOMENT

Andrea Simonin, Global Clients SH&E Manager, AECOM

SHOULDER STRETCH WITH NECK BEND



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

NECK STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

TRICEP STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

SPINAL STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

SHOULDER ROTATION STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

TRICEP ROTATION



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

LATERAL HIP STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

LATERAL STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

INGLE LEG STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

SMALL QUADRICEP STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

CALF STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.

WALF STRETCH



NOTE: Breathe in and exhale as you stretch. Hold for 15-30 seconds. Repeat 3-5 times.



Fit for Duty

According to OSHA, fit for duty means that an individual is in a physical, mental, and emotional state which enables the employee to perform the essential tasks of his or her work assignment in a manner which does **NOT** threaten the safety or health of oneself, co-workers, property, or the public at large

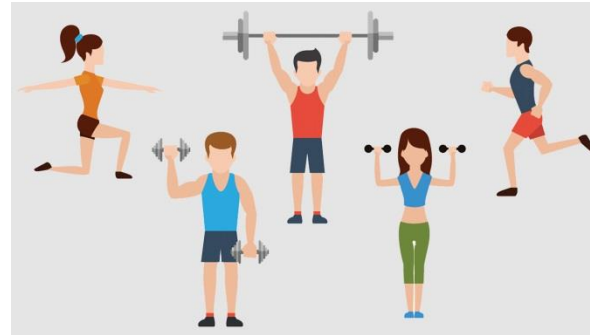


Feeling a little sedentary?

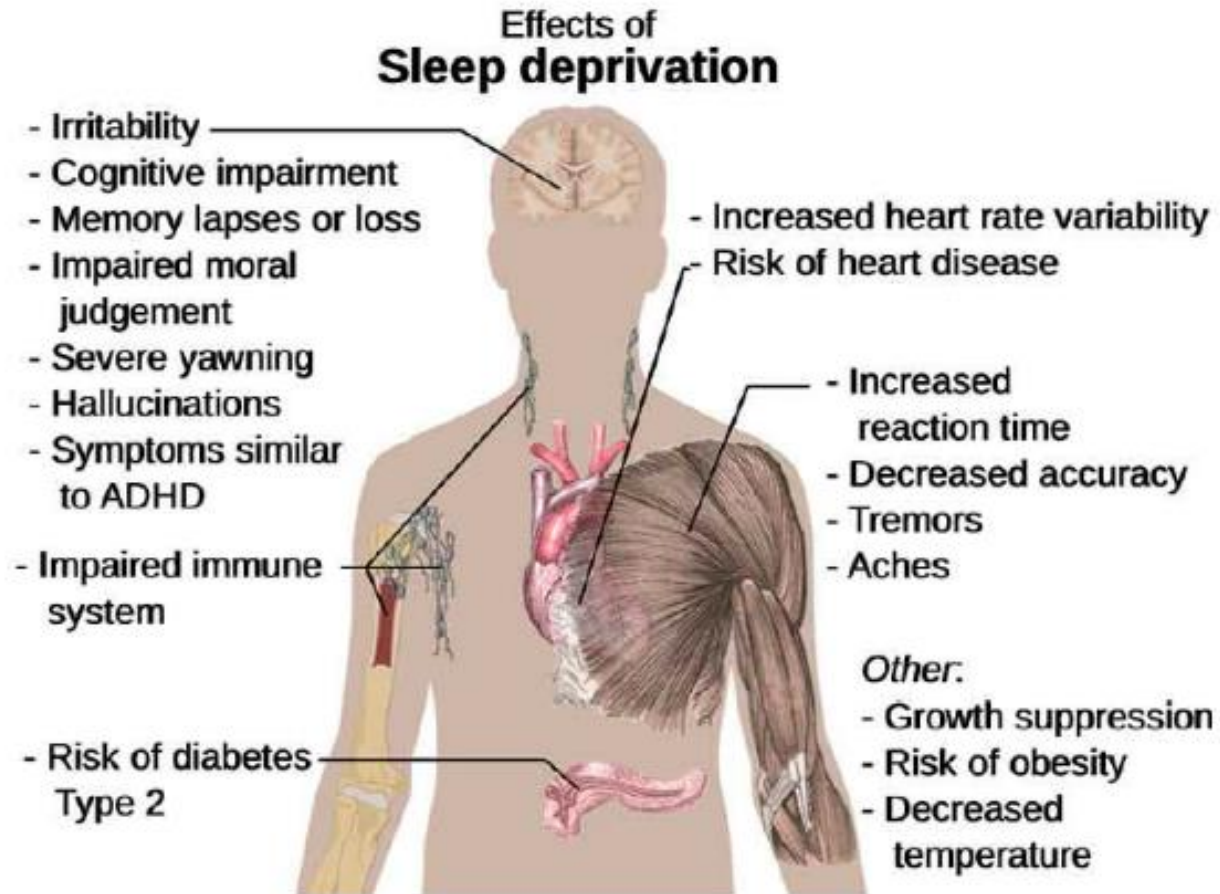
The human body is designed to move but we spend most of our time sitting!!



Some options for you:



Fatigue



- Increases chances of mistakes at work
- Reduces ability to make decisions and complex planning
- lowers your productivity and performance and your ability to handle stress

GET ENOUGH SLEEP and REST!



Mental health



The World Health Organization constitution describes health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity." This means that healthy individuals cope effectively with the normal stresses of life, can work productively, realize their own potential, and are able to make contributions to their communities.

If you, a colleague, or a loved one experiences prolonged sadness, social withdrawal, suicidal thoughts or other mental illness symptoms, please seek help from your local mental health organization



Thank You!

Andrea Simonin

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The INGAA Foundation, Inc.

HOW ONE COMPANY IS TAKING STEPS TO IDENTIFY AND UNDERSTAND SIFs

Scott Long, Contractor Safety Manager, Kinder Morgan

Brian Seaman, Director of EHS, Kinder Morgan

“7 Insights into Safety Leadership”

Thomas Krause and Kristen Bell (2015)

#1 Safety Performance Leads Business Performance

#2 Safety Leadership Starts with Attention to Serious Injuries and Fatalities

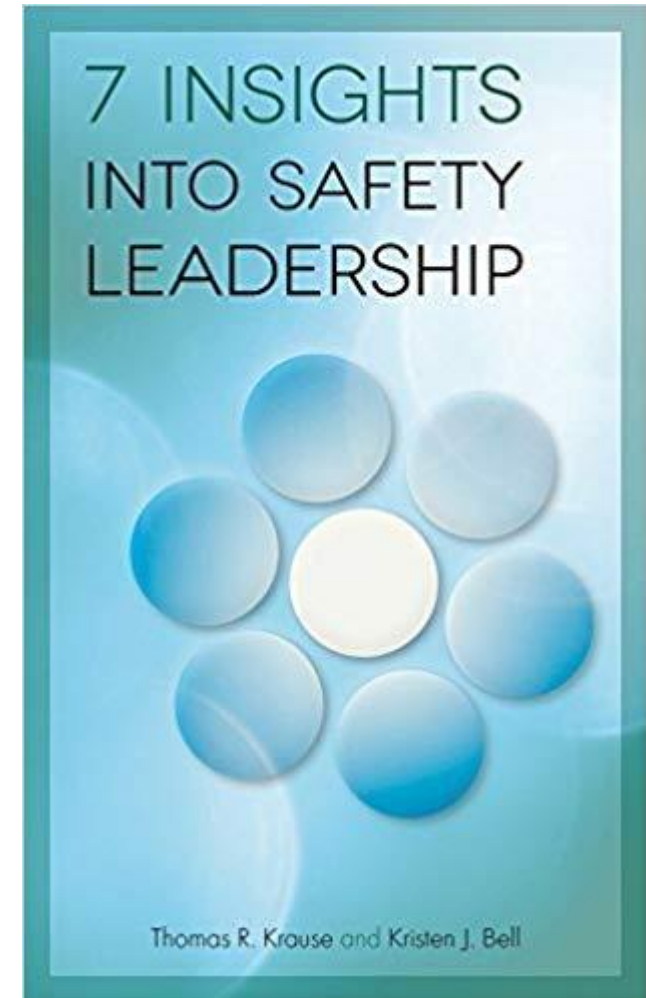
#3 Safety Leadership – The Single Most Important Thing an Organization Can Do To Set Improvement in Motion.

#4 Culture Sustains Performance – For Better or For Worse

#5 Leading Safety Starts with Understanding Safety

#6 The Role of Behavior in Organizational Safety

#7 Safe Decision Making and Cognitive Bias



Interventions

CO2

- Focused on Chapter 7 “Safe Decision Making and Cognitive Bias” with their Leadership Teams.

Natural Gas

- Identified actual and potential SIF’s (2017 and 2018)
- Identified trend with Rigging and Lifting incidents on Major Projects.
- Worked with PM’s & Contractor Safety to increase awareness and address hazards.
- Communicated results out as part of Quarterly Safety Meetings.



Contractor Safety

- Focused on Chapter 2 “Safety Leadership Begins with Attention to Serious Injuries and Fatalities.”
- Adopted Dr. Hallowell’s “Precursor Analysis and Field Safety Engagements” concept.
- Revised current Weekly Safety Report for Major Projects to include SIP Form (Significant Incident Precursor).
- Gulf Coast Express Project Example



SIGNIFICANT INCIDENT PRECURSORS

Mark the presence of each factor:

0 - 'Not Present'

1/2 - 'Partially Present'

1 - 'Present'

Vulnerability to High Energy	Factor Presence	Weight	Weighted Score	Column1	
Lack of Control Barrier and/or Visual Warning		0.5	x2	1	SP5
Line of Fire is Uncontrolled		0.5	x2	1	SP5
Improvisation		0	x2	0	
Productivity Dominated Culture	Factor Presence	Weight	Weighted Score	Column1	
Crew Members are NOT Active in Safety		0	x2	0	
Fatigue		0	x2	0	
Schedule/Productivity Pressure		0	x2	0	
Significant Overtime		0	x2	0	
Prior Safety Performance is Poor		0	x2	0	
Poor Working Planning	Factor Presence	Weight	Weighted Score	Column1	
Crew Members are Unaware of Work Procedure		0.5	x1	0.5	SP1
No/Poor Plan to Address Work Changes		0	x1	0	
No/Poor Pre-Task Plan or Discussion Specific to Work		0	x1	0	
Outside Safety Influences	Factor Presence	Weight	Weighted Score	Column1	
Congested Workspace/Crowding		0.5	x1	0.5	SP-5
Distracted Workers		0.5	x1	0.5	SP-5
Limited Safety Supervision		0	x1	0	
Poor Quality or Inexperienced Foreman		0	x1	0	
Working Alone		0	x1	0	
Total Score (If score equal to or greater than 4, High Impact Low Frequency is Predicted)				3.5	





The INGAA Foundation, Inc.

HOW ONE COMPANY IS TAKING STEPS TO IDENTIFY AND UNDERSTAND SIFs

Brian D. Seaman, M.S., CHMM, CSP

Director of EHS – Kinder Morgan

First Steps: Looking Backwards

- Historical review of data
- Basic understanding of a SIF but no definition
 - 2016 = 88 Actual/Potential SIF's
 - 2017 = 100 Actual /Potential SIF's
- Next attempt to classify above data into “High Value” category
 - 2016 = 17
 - 2017 = 26
- Validated the need to have a definition to guide selections of Actual and Potential SIF's



SIF's Defined

- March 2018 landed on definition found in an paper by Don Martin and Scott Stricoff of BST located on DEKRA's website (see link below)
- Article provided two paths
 - Judgement-Based Narrative Review
 - Event-Based Decision Tree Classification
- We chose the Judgement-Based Narrative Review

<https://www.dekra.us/en/organizational-safety-reliability/content-page-162/>



SIF Defined by BST

Serious Injury or Fatality (SIF) Is an Injury that Resulted (or Could Have Resulted) In:

Examples include, but are not limited to:

Fatality

Life-threatening injury or illness: one that if not immediately addressed is likely to lead to the death of the affected individual, and will usually require intervention or internal and/or external emergency response personnel to provide life-sustaining support.

Life-altering injury/Permanent disability: An injury that results in permanent or long term impairment or loss of use of an internal organ, body function, or body part.

- Laceration or crushing injuries that result in significant blood loss
- An injury involving damage to the brain or spinal cord
- An event that requires application of CPR or an external defibrillator
- Chest or abdominal trauma affecting vital organs
- Serious burns
- Significant head injuries
- Spinal cord injuries
- Paralysis
- Amputations
- Broken or fractured bones
- Serious burns



The Monthly Review

- The previous months incident reports are reviewed
- Actual and Potential SIF's highlighted
- Conference call with EHS Directors and VP of EHS to collaborate and finalize the list
- The results are communicated to stakeholders
 - Includes awareness of trends and action items



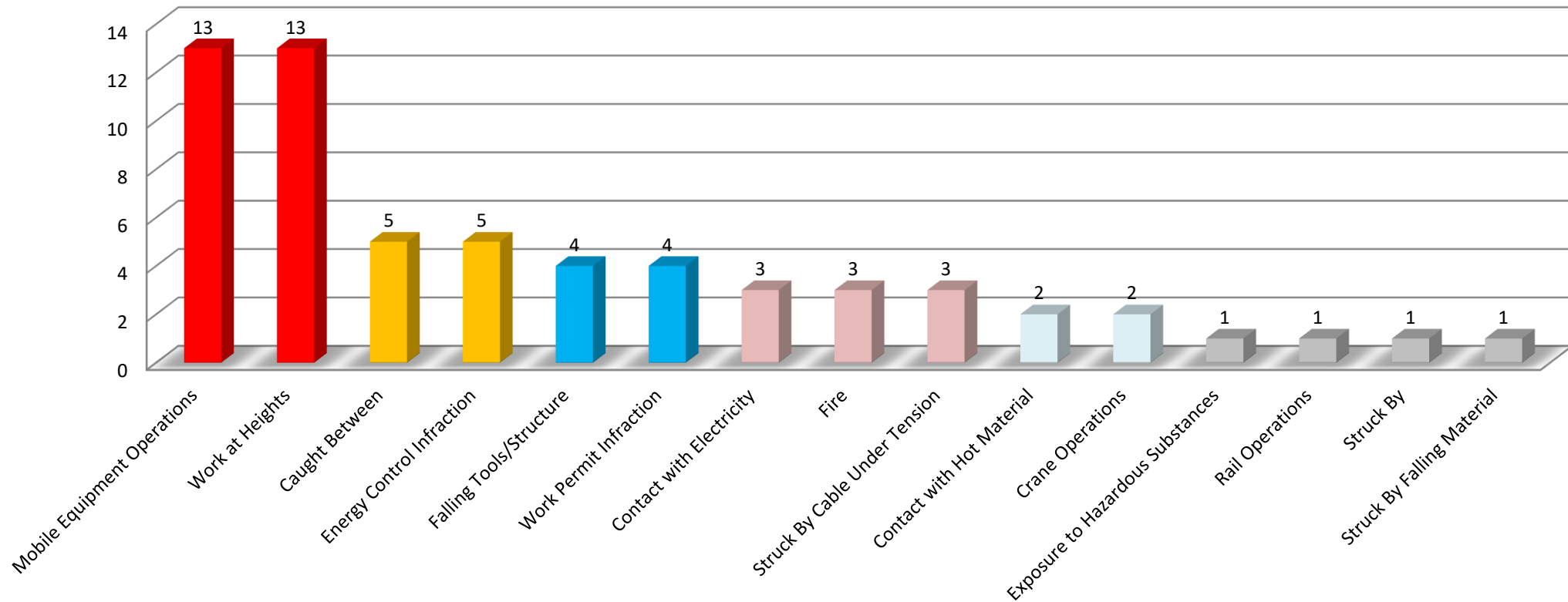
Analysis of 2018 Data

- 2,698 Reports Analyzed
- 61 (2.3%) meeting our definition of a SIF
 - 5 classified as “actual” SIF
 - 56 classified as “potential” SIF
- 38 = KM
- 23 = Contractor/3rd Party



Highest Potential Exposure

Top 2 SIF classes represent 43% of all SIFs (n=61)



Causes & Corrective Actions

- Based on Systematic Causes Analysis Technique (SCAT) Methodology
- Total of 58 different root causes selected
 - (17) Lack of Situational Awareness
 - (11) Improper Attempt to Save Time and Effort
 - (7) Inadequate Identification and Evaluation of Loss Potential
 - (5) Routine, Monotony, Demand for Uneventful Vigilance
 - (5) Improper Motivation: Inadequate Discipline
- Total of 41 different corrective actions
 - (21) Train or Retrain
 - (20) Hold a Stand Down & Review the Incident
 - (12) Revise Procedure & Training Material
 - (6) Improve Communication Between Work Groups
 - (6) Issue Discipline



Conclusions & Path Forward

Conclusion: Focusing on SIFs revealed trends, lessons learned and corrective actions that may not have otherwise been identified

Path Forward:

- Continue to emphasize periodic review of work in progress
 - 15 (25%) of the 61 SIF's were stopped by a teammate who observed a process or behavioral infraction (working at heights without fall protection)
 - 13 (87%) of the 15 incidents involved contractors working for KM
- Revised Job Hazard Analysis to include Points of Consideration for High Risk Work
- Improved incident analysis; especially for actual/potential SIF incidents
 - More thorough analysis of processes and systems involved
- Use of Learning Teams to proactively identify process/system weaknesses
- Integrate technology where appropriate

Kinder Morgan Terminals
JOB HAZARD ANALYSIS WORKSHEET

Has the SSP been reviewed/are all employees trained? Yes No Have all inspection checklists been completed? Yes No N/A

Confined Space	Electrical	Excavation	Hot Work	Lifting/Rigging	Marine	Motor Vehicle	Work at Heights	Process Safety
Lack of Oxygen	Energized Equipment	Underground Electrical Lines	Inadequate Monitoring of Job Site Conditions	Unclear Communication	Improper Use or Failure to Use PFD	Distracted / Drowsy Driving	Inadequate Equipment, Improper Use or Non-Use	Significant Loss of Containment Events
Flammable Vapors	Live Electrical Systems	Underground Pipelines	Flammable and Combustible Materials	Complex Lifts	Unapproved or Poorly Maintained Lifesaving Equipment	Recklessness	Falling to a Lower Level	Fires and Vapor Cloud Explosions
Inadequate Isolation of ALL Energy Sources	Overhead Power Lines	Cave-In	Flammable and Combustible Materials	Un-chocked Pipes or other Material	Gangways and Ladders	Impaired Driving	Falling Objects (tools, equipment, etc.)	Toxic and Hazardous Release
Toxic Gas	Underground Utility Lines	Lack of O2	Uncontrolled Entry Into Restricted Work Area	Improper Rigging, Misidentifying the Load	Environmental Conditions (fog, rain, ice, etc.)	Poor Visibility	Environmental Conditions (rain, snow, ice, fog, etc.)	Release of Hazardous Energy or Material
Material/Product in the Space	Flammable Vapors or Materials	Flammable Gases	Explosive Pockets of Gas / Liquids	Loads Striking Personnel, Vehicles or Equipment	Taut Mooring Lines	Road Conditions / Passing Traffic	Live Electrical Lines	
Converging Walls/Slipping Floors	Static Electricity	Toxic Gases (such as H2S)	Compressed Gas Cylinders	Shifting Loads	Congested Decks and Workspace	Equipment Failure	Inadequately Supported Surfaces	
Unguarded or Exposed Electrical Equipment	Lightning (when working outdoors)	Drowning if Excavation could fill with leak or rain	Flammable Product Movements in Proximity	High-Voltage Power Lines	Inadequate Lighting	Large Loads in Congested Work Site	Lightning	
Inadequate Entry/Exit Methods	Electrically Powered Equipment	Work in Proximity to Excavation Equipment		Congested Work Area	Assured Bonding – Insulating Flanges Properly Installed	Pedestrian Traffic	Suspension Trauma from Fall	
Extreme Temperatures						Overhead Power Lines		



Questions



What Steps Is Your Company Taking to Identify and Understand SIFs

- Has your company defined SIF's? If so, how did you define it?
- What is your companies SIF review process?
- How are you communicating SIFs to your workforce?
- What Lessons Learned does your company have from your SIF analysis?





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BREAK

Please return in 15 minutes



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INGAA FOUNDATION'S CONSTRUCTION SAFETY & QUALITY GUIDELINES

Mike Istre, Project Manager, The INGAA Foundation

How are the LLR and CSQG Related?

- **Goal #1**
 - To improve the safety performance across the industry resulting from the sharing of **best practice/safety-related information**.
- **Goal #2**
 - To **disseminate the information** in an appropriate venue. Spread the word to maintain awareness and enhance employee and worker safety in the office or on the job.

With each project or event, there is a lesson learned or a best practice that can benefit the parties involved, as well as the industry.



Inventory of Proposed CSQG

- Currently 26 identified topics that remain to be addressed and 3 due for refresh
- The Safety and Quality & Integrity Committees were surveyed to identify the 2019 priorities
- The top subjects from the committee survey:
 - CS-G-11: Traffic Control (refresh)
 - CS-G-13: Vehicle Safety (refresh)
 - CS-R-15: Tie-in Safety Guidelines
 - CS-R-10: Pipe Hauling and Stringing Safety Guidelines
 - CS-R-5: Lowering in Safety Guidelines
 - CS-S-6: Fall Protection / Working at Heights
 - CS-S-5: Energy Isolation – Lock-out/Tag-out (LOTO)
 - CS-S-4: Electrical Safety Guidelines
 - CS-S-2: Cranes and Derricks Safety Guidelines



Pre-workshop survey results – CSG Priorities

- CS-R-10: Pipe Hauling and Stringing Safety Guidelines
- CS-G-11: Traffic Control (refresh)
- CS-G-13: Vehicle Safety (refresh)
- CS-S-6: Fall Protection / Working at Heights
- CS-S-2: Cranes and Derricks Safety Guidelines
- CS-S-5: Energy Isolation – Lock-out/Tag-out (LOTO)
- CS-G-3: Safety Orientation Communication (issued 7/14/16)
- CS-R-12: River Crossings Safety Guidelines
- CS-R-2: Clearing Safety Guidelines

- ~~CS-S-4: Electrical Safety Guidelines~~
- ~~CS-R-15: Tie-in Safety Guidelines~~
- ~~CS-R-5: Lowering in Safety Guidelines~~



Expansion of the Construction Safety & Quality Guidelines

- Are there trends that need to be addressed?
- Quality of construction issues?

The screenshot shows the website for the Construction Safety & Quality Guidelines. At the top, there are logos for 'Login', 'INGAA', 'INGAA FOUNDATION', and 'AMERICA'S ENERGY LINK', along with a 'Site Search' box. The main navigation bar includes 'About', 'Reports', 'Members', 'Meetings', and 'Guidelines'. The breadcrumb trail shows 'Home > Guidelines > Construction Safety & Quality Guidelines'. The sidebar on the left has a 'Guidelines' section with sub-items: 'Pipeline Quality', 'Construction QA/QC', 'Safety Intervention', and 'Construction Safety & Quality Guidelines' (which is highlighted in green). The main content area is titled 'Construction Safety & Quality Guidelines' and contains the following text: 'The mission of this initiative is to develop safety and quality consensus guidelines for common natural gas pipeline construction and maintenance activities. This comprehensive collection of guidance documents includes relevant pipeline construction topics with an emphasis on enhancing safety performance and quality throughout the industry. The Guidelines are endorsed by the INGAA Foundation Membership and will support and compliment applicable regulatory requirements. Applying and adhering to more universal guidelines related to employee safety in the interstate pipeline construction industry will promote consistency and level the "playing field" for all construction contractors. Member organizations are encouraged to compare current procedures and contractual requirements to the new Guidelines and determine whether adopting new Guidelines (where current practice differs) may stimulate enhanced safety or quality performance through the use of different procedures and/or aligning procedures with those common across the industry.' Below this text, a yellow callout box with a red arrow pointing to it contains the text: 'Click here to submit a comment or suggestion on the Construction Safety & Quality Guidelines'.





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**WORKSHOP EXERCISE:
BRAINSTORMING IMPROVEMENTS TO THE LLR**

Mike Istre, Project Manager, The INGAA Foundation

Current Status of the Lessons Learned Repository

- Veriforce developed and has hosted the LLR since its inception
- Technology updates now require the LLR to eventually be updated
- Likely transfer of the LLR to a cloud based platform
- There will need to be an investment in development and maintenance



What would make the LLR easier to use?

Start the presentation to see live content. Still no live content? Install the app or get help at PollEv.com/app





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WORKSHOP TAKEAWAYS & CLOSING REMARKS

Scott Long, Contractor Safety Manager, Kinder Morgan

THANK YOU FOR ATTENDING AND SAFE TRAVELS

Please remember to keep submitting your lessons learned
and complete the survey!

See you next year!

