



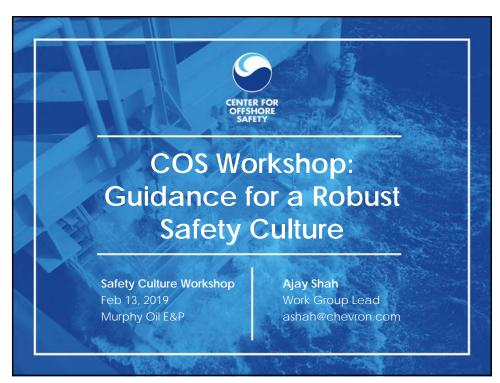
The following are the proceedings from the COS Workshop on Safety Culture held on February 13, 2019. It is made up 2 main parts – this presentation and the exercises.

The COS publication *COS-3-04 Guidelines for a Robust Safety Culture* was used extensively in the workshop, particularly the Success Factors and Potential Obstacles to Success for each of the 6 Safety Culture characteristics. These sections have not been reproduced here; instead, it is highly encouraged that *COS-3-04 Guidelines for a Robust Safety Culture* be downloaded from <a href="https://www.centerforoffshoresafety.org">www.centerforoffshoresafety.org</a> if you would like further information.

Please note – this presentation includes the aggregated feedback from the workshop attendees and is reflective of the combined comments and collective thoughts of the participants.



- These exercises were explicitly created for and used at the COS Safety Culture Workshop and were meant to spur conversation and discussion.
- While they are meant to be depict realistic scenarios, they are not based on any specific incident or event; nor are they meant to be judgements on any individual way of operating or managing a business.
- All examples contain both positive aspects of cultural characteristics as well as areas that may need improvement.
- Exercise List:
  - Exercise: Emperor Palpatine was used as a way to introduce the "Leadership" safety culture characteristic
  - Exercise: Rating was used as a way the workshop attendees views on leadership, specifically the various success factors outlined in "Leadership" characteristic
  - Exercise: Luke Skywalker used to spur conversation around one of remaining five safety culture characteristics; varied table-to-table
  - Exercise: Darth Vader used to spur conversation around another of remaining five safety culture characteristics; varied table-to-table
  - Exercise: Assessment Questions meant to spur conversation and discuss around the "why", "what", and "how" to assess/evaluate/measure safety culture
  - Exercise: Assessment Methodology used as a way to gather ideas on the best ways to assess/evaluate/measure safety culture





- Welcome & Introductions
- The "what" and "why" of the COS Safety Culture work
- Interactive lunch exercise and discussion Leadership
- Interactive group exercises and dilemmas
- How do we assess Safety Culture

Jessica Jackson

Senior Manager, Global Offshore HSE & Regulatory

Murphy Oil Corp



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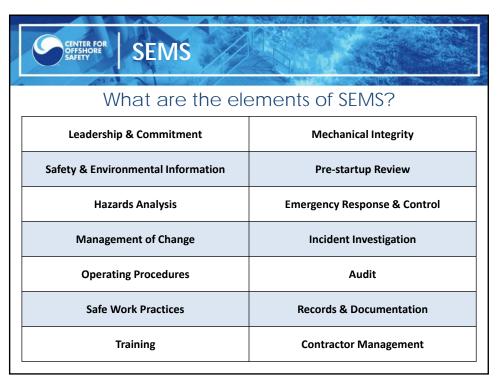


Can we close gaps between work as imagined & work as done?

"If you put good people in bad systems, you get bad results"
Stephen Covey

Safety Culture Simple Truths:

- Safety culture is a part of organizational culture
- The safety culture of an organization cannot be created or changed overnight
- Safety Culture develops over time as a result of:
  - History
  - Work environment
  - Workforce
  - Safety practices
  - Management leadership











# COS Guidance for a Robust Safety Culture – Work Group

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- Kim Forgie, Anadarko
- Paul Linkin, Pacific Drilling
- Russell Turner, BHGE
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- Steven Riddle, ExxonMobil
- Bob Moschetta
- Charles Dudek
- Donal Rajasingam
- Wendy Harris

A big THANK YOU for all of your hard work and "SWEAT EQUITY" -Without you, none of this is possible

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#### What We Know:

- We KNOW humans have multiple brains
- We KNOW humans don't always react with their thinking brain
- We KNOW humans are social creatures that react to social stimuli
  - Your culture is that social stimuli
- We KNOW that culture is stronger than strategy

So how can you create a culture where people have the right state of mind – that they can do the right thing without hesitation



#### What the Public knows:

- April 2010 Macondo / Deepwater Horizon incident
- May 2013 BSEE issues Safety Culture Policy Statement defining 9 characteristics foundational to having a robust safety culture (the "BSEE 9")
- April 2016 U.S. Chemical Safety and Hazard Investigation Board issues Volumes 3 & 4 of their Investigation Reports into Macondo touching on cultural aspects of incident
- June 2016 National Academies of Sciences, Engineering, and Medicine (NASEM) publishes Transportation Research Board (TRB) Special Report 321 "Strengthening the Safety Culture of the Offshore Oil and Gas Industry"

The basic question is -

"Does Industry have the Right (Safety) Culture?"

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# Open Question – What is (Safety) Culture?

- Way of thinking about risk and how to make sure bad things don't happen
- · How you behave when nobody is watching
- Manifestation of thought process and belief in safety
- Values, traditions, etc. that you do without thinking the way things really are
- Not your policy and process what do you actually do
- · Behaviors driven by values, attitudes, beliefs
- The way we do things around here; good culture is that they do things for the right reason

#### Is one culture better than another?

- Yes depends on the organization, work activity
- Results



# NASEM Report "Strengthening the Safety Culture of the Offshore Oil and Gas Industry"

- Identify the essential characteristics of safety culture, including barriers, ways to assess, and the role of regulators
- Recommend path forward to strengthen offshore industry safety culture; recommendations to industry included:
  - Further collaboration within industry to effect change
  - Creation of guidance around safety culture expectations for all industry
  - Regularly assessing safety culture using multiple methods and indicators
  - Adopt the "BSEE 9"
- Used the BSEE definition of safety culture
  - "The core values and behaviors of all members of an organization to conduct business in a manner that protects people and the environment"

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# **NASEM Report Included Obstacles to Safety Culture:**

- Safety culture is an ambiguous concept that is difficult to measure
- Fragmented and diverse industry
- Varied leadership commitment across organizations
- Gradual, uneven shift in industry culture from risk-taking to commitment to occupational and process safety
- Regulators have difficulty building expertise to support industry transformation.



## **BSEE Articulated 9 Safety Culture Principles in 2013**

- 1. Leadership Commitment to Safety Values and Actions
- 2. Hazard Identification and Risk Management
- 3. Personal Accountability
- 4. Work Processes
- 5. Continuous Improvement
- 6. Environment for Raising Concerns
- 7. Effective Safety and Environmental Communication
- 8. Respectful Work Environment
- 9. Inquiring Attitude

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### **COS Work Group**

- To help industry and in response to the public interest, COS created a cross-functional team reporting directly to the COS Board on developing a good practice around safety culture
- Team decided to develop guidance around 6 of the "BSEE 9" characteristics of safety culture – the "COS 6"
- Team started work in Oct 2016; final work was approved in Mar 2018
  - · Tested it multiple times within the work group
  - Tested it more publicly at the SPE HSSE-SR Conference in April 2017

COS-3-04 Guidelines for a Robust Safety Culture
Available now at <a href="https://www.centerforoffshoresafety.org">www.centerforoffshoresafety.org</a>



### COS 6

- Leadership Commitment to safety and active engagement of leaders at all levels
- Respect and Trust A work environment where personnel feel that the information they share is respected and trusted as an accurate reflection of the situation
- Environment for Raising Concerns A work environment that promotes personnel sharing concerns, mistakes, and observations as opportunities to learn and improve without fear of retaliation, intimidation, harassment, or discrimination
- Open Communication Personnel communicate openly, freely, accurately, and clearly
- Personal Accountability Personnel hold themselves and each other responsible for their actions
- Inquiring Attitude Personnel continually review existing assets, conditions, and activities, and question deficiencies that might result in error or inappropriate action

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#### **Goals of the Document:**

- Define and describe specific safety culture characteristics to help industry alignment
- Develop standardized list of key success factors and potential obstacles to help discussion and promote cross-company understanding
- Develop standardized list of key success factors and potential obstacles against which companies can assess their own safety culture to allow for more systematic and comparable assessment



## **Each Characteristic Organized Identically:**

- **Description** short explanation of the safety culture characteristic
- Value and Purpose a discussion of the "why" of the characteristic, describing how successful implementation and execution of the characteristic can impact the safety culture and business as a whole
- Success Factors bulleted list of specific attributes and behaviors that support and enable the successful implementation and execution
- **Potential Obstacles to Success** bulleted list of specific attributes and behaviors that can inhibit or prevent the characteristic

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What is a Leader?

Do you need a Leader to Lead?

What is the role of Leadership in driving culture?



### **Exercise 1 - Rules**

- · Will start with the "Emperor Palpatine" Exercise
  - Nominate one speaker per table
- Will be focusing on Leadership characteristic
  - Use the Success Factors and Potential Obstacles for Leadership
- 15 minutes to read through the text and document "What Went Right" and "What Went Wrong"

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#### **What Went Right**

- · Team reported the issues
- Acquired assets from a good reputational company
- Accurate drawings on the platform

#### **What Went Wrong**

- · Leaders did not act on known issues
- Did good reputation mask/reduce the due diligence?
- No leadership meetings/visits on newly acquired assets
- Perception that financial drivers were driving the urgency of the action
- Due diligence plan did not have appropriate resources/did not have clear understanding of drivers
- Lack of due diligence process i.e. as-built drawings
- Management system how did it not flag/catch these issues
- What was the process safety check? Why did the variation in documentation not flag a higher risk profile?
- Was there enough feedback to leadership



### **Exercise 2 - Rules**

- Will use the "Leadership Exercise Rating"
  - One per person everyone fill out your own
  - Will be rating/ranking the individual Success Factors for the Leadership characteristic
- You have a total of 50 points to distribute
  - Assign however many points you'd like to each characteristic (from 0 to 50) – however, only have 50 total to distribute
  - Aggregate tallies will be included in the proceedings
  - Higher number = more important in driving robust Safety Culture
- 15 minutes

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COS Safety Culture Workshop Exercise 2: Results			
Success Factors for Leadership	Aggregate Score	# of times Selected as Most Important	
Leaders actively promote actions and policies that support all the safety culture characteristics	383	19	
Leaders actively listen and discuss safety concerns, visibly act to resolve issues, and plainly communicate outcomes	520	30	
Leaders view incidents and events as learning opportunities to understand how the management system or safety culture may be improved instead of finding who to blame or who made a mistake	420	19	
Leaders react to the message, not the messenger	263	6	
Personnel perceive that their safety and the safety of every person is critically important to everyone in a leadership position	430	26	
Leaders recognize the human performance aspects of work and accept that most errors are mistakes due to systemic conditions and not malicious intent	394	18	
Leaders question the status quo in a manner that creates an environment where it is easy for people to raise concerns	421	15	
Safety is a key part of the organization's performance management and talent development methods, and a critical value to its leaders	321	14	
Leaders understand the impact that they have and actively monitor, continually reinforce, and decisively act to improve the organization's safety culture	525	37	



### **Exercise 2 Results**

- From a "points" perspective, 2 success factors clearly considered the most important
  - Both require leaders to be visible in their actions
  - Both require leaders to actively seek feedback (both by listening and by monitoring)
- Other things to note:
  - Many people picked more than one area as "most important"
     this is reflected in the total

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### **Exercise 3 - Rules**

- Nominate one speaker per table (different from previous)
- Each table will be assigned 1 of the remaining 5 Safety Culture characteristics
  - Use the Success Factors and Potential Obstacles from the relevant section
  - Will switch to new characteristic for each example
- 3 examples 45 total minutes
  - Start with "Luke Skywalker" 10 min
  - Move to "Darth Vader" 20 min
  - End with discussion of a real dilemma you have 15 min

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#### Exercise 3 "Luke Skywalker"

- · Different safety culture characteristics evaluated across tables
- Most groups found both positive aspects and areas to improve in the example
- Most groups found solution to be in encouraging further reporting, but different ways to accomplish this goal
- Most groups found use of survey and leadership follow-up to be positive signs of a good culture, but were concerned about the uneven reporting

#### Exercise 3 "Darth Vader"

- · Different safety culture characteristics evaluated across tables
- Most groups found both positive aspects and areas to improve in the example
- Most groups found communication to be an areas where further improvements were necessary
- Most groups agreed that the workforce perception had led to less than ideal outcomes and that it was a leadership responsibility to correct the perception and expectations
- Discussion on the messaging around safety and the impact of that messaging on the workforce
- Most people recognized value of independent review of HAZOP



**Leadership** – Commitment to safety and active engagement of leaders at all levels

- **1. Respect and Trust** A work environment where personnel feel that the information they share is respected and trusted as an accurate reflection of the situation
- 2. Environment for Raising Concerns A work environment that promotes personnel sharing concerns, mistakes, and observations as opportunities to learn and improve without fear of retaliation, intimidation, harassment, or discrimination
- **3. Open Communication** Personnel communicate openly, freely, accurately, and clearly
- **4. Personal Accountability** Personnel hold themselves and each other responsible for their actions
- 5. Inquiring Attitude Personnel continually review existing assets, conditions, and activities, and question deficiencies that might result in error or inappropriate action

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# How Do You KNOW What Your Safety Culture Is?

- Every company has their own culture, their own language, and their own quirks
- Every company also has micro-cultures
- How do you take these into account when trying to determine what your culture is now? How do you compare cultures?

How do you know where to go if you don't know where you are?

How do you know what to do if you don't know what's not working?



# How do you Measure/Assess/Evaluate Safety Culture?

- What is the right term?
  - Assess? Evaluate? Measure? Others?
- What are you trying to assess?
  - Organizational belief? Adherence to controls? Hearts and minds?
- Why are you trying to assess?
  - To identify specific opportunities (indicators or anecdotal)? To get a general sense of how things are going? To track progress?
- How do you best assess?
  - Surveys? Indicators? Operational performance?

Is there a "one-size-fits-most" solution

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### **Exercise 4 - Rules**

- Nominate one speaker per table (different from previous)
- Each table will be assigned 1 of 3 key questions
  - · What are you trying to assess?
  - Why are you assessing/what is the desired outcome?
  - How to best assess?
- 10 minutes



#### What is Assessed - Common Themes

- · Attitude towards safety
- Trends need to look at results across time
- Behaviors
- Leadership

#### **Why Assess**

- · Set a baseline to understand current culture
- To understand where organization is in safety culture journey
- Identifying opportunities for improvement form cultural perspective
- As an indicator of current workforce attitudes
- Verification that current KPI are really measuring performance
- Establish new KPI

#### **How to assess – Common Themes**

- Use of surveys to understand where to dig deeper; surveys not meant to be the end, but the beginning
- · Leadership engagement critical
- · Asking all levels of organization
- Use of cross functional teams or third-party teams for independence and fresh perspective

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### **Exercise 5 - Rules**

- Nominate one speaker per table (different from previous)
- Each table will be assigned 1 of the 6 Safety Culture characteristics
- Create an assessment methodology for that characteristic
- 15 minutes



Each table was assigned different Safety Culture characteristics to create an assessment methodology for; however, the below commonalities emerged:

- Use of surveys, both electronic and paper
- Face-to-face interviews across all parts of the organization
- · Use of independent parties to conduct and analyze surveys
- Use of KPI to help understand areas that need further study (targeted surveys)
- Use of cross-functional AND cross-level teams when creating and reviewing surveys
- Review of near-miss reporting and observations as a measure of safety culture

#### Other notable ideas that were brought up included:

- Exit interviews to include questions about the company culture
- Review of turnover and retention rates to understand impact of culture

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#### What should this groups Next Steps be?

- How do we leverage operator knowledge to help contractors x3
- How do we leverage contractor knowledge and experience with multiple operators x3
- Workshop present to contractors/operators best practices in this space x2
  - Reach out to those outside industry as well
- How do we help align different parts of industry (operator/contractor, etc.)
- Another workshop like this one x5 (especially for non-COS members)
- Another workshop with deeper dive into leadership engagements
- Collaborative workshop around assessment methodologies x4
- Collaborate with other organizations with more coverage/international groups (i.e. IOGP/IADC/IMCA) x5
- Try to reach out to those who aren't here x2
- Work in concert with regulators to ensure all stakeholders are shifting their culture positively
- Look to integrate into SEMS assessments/audits x2
- Develop a good practice around the who/what/how the culture assessment should be done x6
- Look at entire energy stream (downstream, midstream) and bring them into discussion / learn from them
- · Workshop around sharing how we are managing major risks top threats and how are we mitigating
- Take something back from this group and make a small change
- Evolve existing guidance to include further discussion/examples of KPI and how they can be used to help assess culture x3
- How does COS help lift industry culture as a whole?



## What should this groups Next Steps be (con't)?

- What specific initiatives are out there that we can use to make changes
- Further help in developing "soft skills" that will help advance conversations x2
- · Better integrate research and science around safety culture
- Operationalizing the idea that "culture relies on systems"
- How do we "formalize" this knowledge transfer process from COS to smaller operators x3
- Cyber-safety
- Workshop like this into the schools and with researchers (engineering, business) to help start early development of skills x2
- · More focused workshops
- Provide additional clarity and guidance on what should not be done
- Evolve good practice to discuss impact of cyclical business on safety culture and how to sustain a strong culture
- Work with regulator to help industry understand how culture and safety are tied to operational reliability and stakeholder return
- COS get 3 member volunteers to have an in-depth conversation, then share with rest of industry (webinar, etc.)
- Stay in close communication with other stakeholders in this area (i.e. NAS, BSEE) (can we act as technical advisor to others doing research)
- · Better offshore representation in this type of workshop
- · Start the conversation around the disconnect between offshore daily and onshore office

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# What should this groups Next Steps be (con't)?

- How does continuous improvement interact with compliance
- How do you understand culture relatively quickly i.e. how do you quickly understand level of housekeeping, how do you understand communication, how do you understand the level of trust in operational leadership
- Regulator safety culture help regulator change their safety culture and how to better understand safety culture x2
- Good practice/workshop on how to get to get good safety culture
- Better conversation with c-level execs on where they see the gaps and where improvements
- Sharing workshop and discussion around culture surveys
- How do we bridge the gap between the mid-level and upper-level mgmt. and make this work relevant to the mid-level / field leadership
- Review TRB report on measuring the effectiveness of SEMS
- More explicitly tie SEMS to safety culture
- Incorporate more human performance into COS work



#### COS Safety Culture Workshop – Leadership Exercise "Emperor Palpatine"

"Emperor Palpatine" is an oil & gas company primarily focused on upstream operations, both onshore and offshore. In Nov 2018, it acquired several offshore platforms from another operator (Acme Oil) that also has onshore assets that "Emperor Palpatine" is interested in. Acme Oil has a reputation as an industry leader in safety and environmental performance.

The acquisition was conducted relatively quickly, with a compressed time frame for due diligence and review. No explanation for the haste was publicly given. A common perception among the "Emperor Palpatine" employees is that the acquisition was somehow tied to the executive bonuses that the company gives at the end of the fiscal year (Mar 31). Given the quick nature of the acquisition and the desire to continue to operate all assets during the acquisition, only a limited number of people were able to review the provided documents prior to the final decision being made. It was also decided to expedite the review process by having the only the acquisition project manager would brief the senior leadership with no other contact between the review team and the leadership.

The provided review documents were relatively limited in scope and did not all align/match; this issue was flagged during the review, but it is unclear what, if any, actions were taken as a result. Furthermore, it was discovered after the acquisition that the actual physical equipment on the platforms did not match the provided documents. Each platform maintained, and continues to maintain, their own accurate drawings on site, with each platform also choosing how to notate, maintain, review, and store the drawings. This has led to misalignment and variations in the documentation and operation of each platform, even those of similar design and activity. There is also a high reliance on the platform personnel's knowledge and memory to operate these platforms.

"Emperor Palpatine" has a relatively easy to use reporting system to capture these types of issues, and personnel finding these issues were using it diligently (as per company policy). However, use of the system has dropped off recently after a company-wide townhall meeting in which a senior leader first thanked the personnel reporting the issues, then stated it was "time to start welcoming our new employees, stop the complaining, start fixing problems". There have been no leadership visits to the newly acquired platforms as of yet, with the previous three being rescheduled or cancelled. "Emperor Palpatine" is now ready to acquire the onshore assets from Acme Oil, with leadership seemingly shifting its focus on this new opportunity.

# **LEADERSHIP EXERCISE: EMPEROR PALPATINE**

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ELEMENT	LEADERSHIP		
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#### SAFETY CULTURE CHARACTERISTIC: LEADERSHIP

#### **Success Factors:**

- Leaders actively promote actions and policies that support all of the safety culture characteristics
- Leaders actively listen and discuss safety concerns, visibly act to resolve issues, and plainly communicate outcomes
- Leaders view incidents and events as learning opportunities to understand how the management system or safety culture may be improved instead of finding who to blame or who made a mistake
- Leaders react to the message, not the messenger
- Personnel perceive that their safety and the safety of every person is critically important to everyone in a leadership position
- Leaders recognize the human performance aspects of work and accept that most errors are mistakes due to systemic conditions and not malicious intent
- Leaders question the status quo in a manner that creates an environment where it is easy for people to raise concerns
- Safety is a key part of the organization's performance management and talent development methods, and a critical value to its leaders
- Leaders understand the impact that they have and actively monitor, continually reinforce, and decisively act to improve the organization's safety culture

#### **Potential Obstacles to Success:**

- Leaders focus on performance indicators that drive behaviors that are counter to the safety culture they are trying to set and maintain
- Leaders treat safety as a separate entity and do not recognize it as being integral to business success
- Day-to-day behaviors and actions of leaders not aligned with leaders' safety messaging
- An environment in which challenges and contrary viewpoints are not encouraged
- Using previous successes as the only predictor of future performance, leading to a false sense of security and unawareness of current risks
- Minimizing the impact of serious incidents or high potential events as one-offs that do not reflect on the safety culture of the organization
- Leaders are not proactive and only address issues that have visible consequences
- A culture of blaming individuals for incidents and events

# COS Safety Culture Workshop – Leadership Exercise "Rating"

Expectation	Score
Leaders actively promote actions and policies that support all the safety culture characteristics	
Leaders actively listen and discuss safety concerns, visibly act to resolve issues, and plainly communicate outcomes	2010
Leaders view incidents and events as learning opportunities to understand how the management system or safety culture may be improved instead of finding who to blame or who made a mistake	(60)31
Leaders react to the message, not the messenger	1-08
Personnel perceive that their safety and the safety of every person is critically important to everyone in a leadership position	
Leaders recognize the human performance aspects of work and accept that most errors are mistakes due to systemic conditions and not malicious intent	
Leaders question the status quo in a manner that creates an environment where it is easy for people to raise concerns	
Safety is a key part of the organization's performance management and talent development methods, and a critical value to its leaders	
Leaders understand the impact that they have and actively monitor, continually reinforce, and decisively act to improve the organization's safety culture	

#### COS Safety Culture Workshop – Exercise 3 "Luke Skywalker"

"Luke Skywalker" is a drill rig with ~120 personnel regularly on-board. In early 2018, the rig manager received anecdotal communication that the proper lifting equipment was not being used consistently to reposition, turn, or transfer non-critical smaller equipment, and that these types of lifts had resulted in several unreported minor injuries. Although there had been a slight rise in reported first aids, the rig manger suspected the actual number of injuries was higher.

In mid-2018, senior management responded to these anecdotal comments by conducting an anonymous confidential survey regarding lifting equipment usage and injury reporting. The survey was motivated in part by the company's desire to continue to be recognized as one of the safest places to work.

Response to survey was highly encouraged, and response rates were good. Personnel reported that they were not using the lifting equipment consistently because they did not feel the equipment was useful in conducting the lifts, especially for the relatively light and smaller equipment that was deemed non-critical. Additionally, there had been a number internal and industry alerts recently about incidents that had resulted from using similar types of lifting equipment. The crew felt that using the specified lifting equipment could lead to higher risk than lifting the equipment manually.

The survey also revealed that the field personnel discouraged injured co-workers from reporting minor injuries (e.g. first aids). It was found that the field personnel took pride in being known as "a safe place to work" and felt that additional reporting of these types of minor injuries was would damage that reputation. A common perception throughout the organization was "reporting a minor injury resulted in more hassle than it was worth." Moreover, personnel felt that over-reporting of these types of injuries would result in unnecessary changes to safety policies and processes, driven more by the perception of a problem than any real problem. It was well understood that the management and senior leadership expected all injuries to be reported, but that was thought in many ways to be "corporate speak" or "office speak".

# **EXERCISE 3: LUKE SKYWALKER**

SAFETY CULTURE	
ELEMENT	
WHAT WENT RIGHT	101/2 Leb 13-101/2
WHAT WENT WRONG	

#### COS Safety Culture Workshop – Exercise 3 "Darth Vader"

"Darth Vader" is a large oil & gas platform with process equipment on multiple decks. In 2014, the OIM noticed that the multiple changes that had occurred over the years had caused equipment, instruments, and gauges to be installed all over the platform. This in turn made it much more difficult for the operators to complete their daily rounds and to respond to alarms and issues. To help alleviate this issue, a team was formed to develop and install new hardware (i.e. instruments, wiring, etc.) and software (i.e. control systems, interface panels, etc.) to make it possible to monitor most of the platform from a central control center. The OIM served as the chief operational representative on this team.

The system was designed in the office and tested via a series of table-top exercises. While these exercises revealed some slight issues, these issues were believed to have been resolved and were never communicated to the field. The new systems were installed in early 2017. Right after the installation, the OIM won the lottery and decided to retire to a private island.

The months after the installation of this hardware led to an increase in the number of shutdowns and equipment issues. This outcome had been anticipated; indeed, it was viewed as a positive outcome for the project, as the onshore leadership felt that the platform had been previously underreporting issues and that new, more automated, systems were now catching these issues. As these issues were caught, new work orders were created, and the issues fixed. This work was done in addition to the normal day-to-day activities of the platform. After 4 months, the situation stabilized, and the number of issues being reported decreased to the lowest levels in years. "Darth Vader" became the crown jewel for the company, regularly touted and shown off to internal and external stakeholders. None of the other platforms operated by the company saw the same level of improvement.

By late 2018, it was time to verify the HAZOP for "Darth Vader". Given the large number of changes made to the platform and subsequent large capital investment made by the operating entity, it was decided to have an independent team conduct the verification. This team was composed of both internal SME and external stakeholders from the NOJV partners. During the verification, it was found that most of the new alarms had been disabled and that the operators had reverted to the previous ways of responding. Moreover, workarounds in the control systems had been created to more efficiently and effectively conduct operations.

When asked about these changes, field personnel stated that the new systems were difficult to understand and that they did not feel confident using or relying on these systems, especially for the higher hazard activities. The training had been limited and mostly computer based. The new systems also did not respond the way they were envisioned. Field personnel had on more than one occasion acted to prevent an incident; however, there was no system to record when something <a href="didn't">didn't</a> go wrong. While some of the issues had been reported, the overall control system software was not considered an "asset" and therefore was not part of the company's asset reliability program, but rather managed by a separate IT department. This had resulted in a different prioritization of these issues vs equipment issues.

# **EXERCISE 3: DARTH VADER**

SAFETY CULTURE	
ELEMENT	
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WHAT WENT WRONG	eth cikure.

# **EXERCISE 4: ASSESSMENT QUESTIONS**

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<b>EXERCISE 5:</b>	<b>ASSESSMENT</b>	METHODOL	.OGY
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SAFETY CULTURE ELEMENT