



ONSHORE SAFETY ALLIANCE

Annual Report

2022



SPECIAL NOTE

OSA publications may be used by anyone desiring to do so. Every effort has been made by the OSA to assure the accuracy and reliability of the data contained in them; however, the OSA makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any authorities having jurisdiction with which this publication may conflict.

Data published in the OSA Annual Performance Report for the 2021 Reporting Year are based on data voluntarily reported by exploration and production operators operating in the United States. Although OSA reviews reported data to identify internal inconsistencies and unusual period-to-period changes, in general, OSA is not able to verify the accuracy of reported data. OSA, API and any of their employees, subcontractors, consultants, or other assigns make no warranty or representation, either express or implied, with respect to the accuracy, completeness, or utility of the information contained herein, or assume any liability or responsibility for any use, or the results of such use, of any information or process disclosed in this publication, or represent that its use would not infringe upon privately owned rights.

OSA publications are published to facilitate the broad availability of proven, sound engineering and operating practices. Users of this material should not rely exclusively on the information contained in this document. Sound business, scientific, engineering and safety judgment should be used in employing the information contained herein.



TABLE OF CONTENTS

| | |
|--|----|
| Special Note..... | 2 |
| Joint Message from OSA Leadership | 4 |
| OSA Participants | 6 |
| OSA Participant Insights..... | 8 |
| Leveraging Industry Knowledge to Advance Safety | 8 |
| Collaboration Across Industry Segments | 10 |
| OSA Program Summary | 12 |
| 2021 Safety Performance | 19 |
| Introduction | 19 |
| 2021 Highlights | 20 |
| Operator Data..... | 21 |
| Drilling Contractor Data..... | 26 |
| Service Company Data..... | 27 |

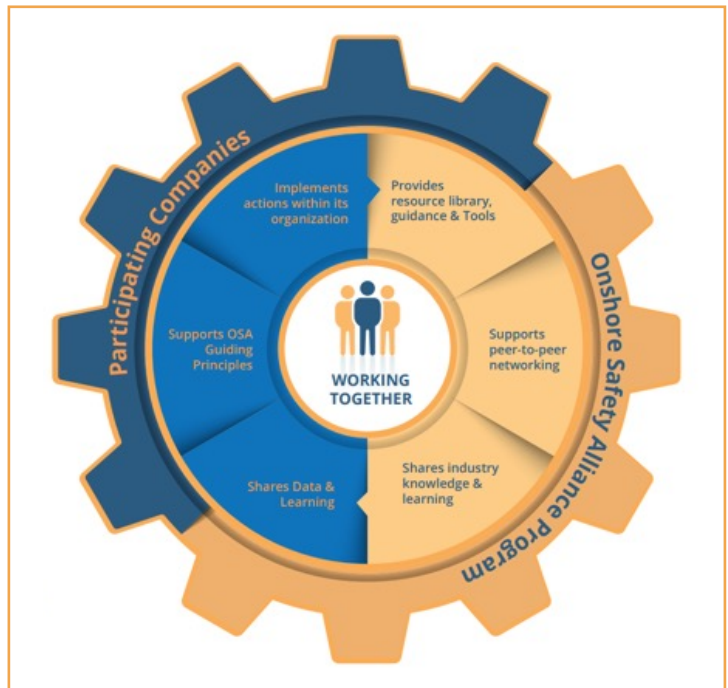


JOINT MESSAGE FROM OSA LEADERSHIP

The entire industry shares the goal of maintaining safe operations and reducing serious injury and fatality (SIF) events. Last year, a voluntary coalition of operators, drilling contractors, service companies and trade associations launched the Onshore Safety Alliance (OSA) to work together to support that commitment. The OSA provides a set of guiding principles, a resource library and a network of other organizations equally pledged to the same goals.

SIFs have significant impact on workers, the community in which they live and the industry as a whole. Through the sharing of best practices to identify and reduce serious hazards, OSA participants are dedicated to advancing personal and process safety to reach the collective goal of eliminating SIFs in our industry and creating a safety culture where everyone feels accountable for their safety and the safety of others.

To accomplish this, the OSA program includes six key safety actions participants voluntarily commit to carry out within their organizations. These actions are designed to promote meaningful progress in reducing hazards and preventing SIF events across their operations.



Recognizing that participants may be at different points on their safety journey and engaged in a wide spectrum of onshore operations, the actions have been designed with flexibility for companies to implement the action in a way that fits within their operations while still advancing the collective OSA's objective. In return, the OSA provides resources, guidance, tools and peer-to-peer support to bridge industry knowledge, advance safety cultures and reduce SIF events.

None of this is possible without the dedication of the women and men of the participating companies, and we are grateful for the enthusiasm and leadership they continue to bring to the program. The OSA program was developed and launched during a particularly challenging time for both the world and our industry. The COVID-19 pandemic has impacted the lives of every person across the globe and challenged our industry to continue to deliver affordable energy, maintain safe operations, and handle additional new difficulties such as virus-testing, quarantining protocols, and contact tracing. We're proud of the resolve of the industry to continue to prioritize safety as a core value in the midst of unprecedented challenges.

While there is much more work to be done, the OSA is a solid foundation based on effective actions upon which we will continue to build in the years to come. We're committed to accelerating the program's progress as well as meeting the challenge of continually reducing the number of SIF events occurring in our industry in order to ensure the well-being of the industry's workforce.



**LUKE
DUNN**

Crownquest
OSA Chair



**VICKY
JACKSON
NIELSEN**

Hess
OSA Rising Chair



**EMILY
HAGUE**

API
OSA Manager



OSA PARTICIPANTS

Building an alliance of operators, drilling contractors, service companies and trade associations working together to protect our workers and improve safety.

OPERATORS AND PRODUCERS



DRILLING CONTRACTORS



SERVICE COMPANIES



CHARTER TRADE ASSOCIATIONS





OSA PARTICIPANT INSIGHTS

LEVERAGING INDUSTRY KNOWLEDGE TO ADVANCE SAFETY

“

Thanks to the Onshore Safety Alliance, companies like ours can learn from and leverage the collective knowledge of the industry - helping us to advance our own internal safety culture and further demonstrate our commitment to safety both to our employees as well as to our customers.”



David Christmas
Chief Executive Officer
Stage Completions

Stage Completions, established in 2014, provides innovative, interventionless completion systems to the oil and gas industry. Its technology has been tested in diverse formations and is gaining rapid global adoption. David Christmas – Stage Completions’ Chief Executive Officer – describes its involvement with the Alliance.

At Stage Completions, safety and ESG is at the core of everything we do. Our innovative solutions are all designed to eliminate risk while supporting enhanced operations and are centered around safety by eliminating equipment on site at a frac, and protecting the environment by reducing the carbon intensity and water usage during a frac.

As a participant in the Onshore Safety Alliance, we have had the ability to rapidly advance our safety practices and further our position within the industry as a company fully committed to safety.

Stage Completions is a 35-plus employee company currently in an early and rapid growth phase, and with the help of the OSA, we have been able to quickly move our organization up the safety learning curve by leveraging the collective expertise of the industry made available through the OSA. It has provided networking with other safety experts as well as access to resources and best practices – allowing us to quickly and easily incorporate safety tools like life-saving actions programs and hazard identification guidance into our safety management system without having to expend our own internal resources or funds unnecessarily to create these procedures from scratch.

Being an OSA participant also improves our company's position and credibility within the industry. Through the OSA, we are able to interact and be aware of where the 'big' industry players are on their safety journey and where they are headed, while also representing our company's equal commitment to safe and responsible operations. As the CEO of my company, my participation also reinforces to our employees how seriously Stage Completions takes its commitment to worker safety and health. At the same time, it also helps to further our credibility as a responsible company both with our clients, our competitors and with regulators.

And of course, another key selling point for the OSA is that there are no fees or dues required to join. The benefits gained through OSA participation only require a minimal overhead cost of personnel time – a real and practical factor for a young company.



**29 PARTICIPATING COMPANIES
EMPLOYING OVER 350,000 OIL
AND GAS WORKERS**

15

operators employing
over **200,000** oil and
gas workers

5

drilling contractors
employing over **37,000**
oil and gas workers

9

service companies
employing over **115,000**
oil and gas workers

COLLABORATION ACROSS INDUSTRY SEGMENTS

“

It's rewarding to see all our member companies working together towards a common vision and the willingness to share and collaborate to achieve a safer work environment for the men and women of our industry.”



JP Srock

Vice President of Safety & Risk Management
Hi-Crush

Hi-Crush Inc. is a premier provider of proppant and logistics solutions to the North American petroleum industry. Its facilities produce high-quality monocrystalline sand, a specialized mineral used as a proppant during the well completion process to facilitate oil and natural gas recovery. JP Srock – Vice President of Safety & Risk Management – describes the value of the Alliance for Hi-Crush.

At Hi-Crush, we believe that the protection of human life and the betterment of the environment in which we live is a core value in everything the organization does. This philosophy is reflected in all health and safety policies and environmental programs where we strive not only to meet, but exceed. As a founding member of the Onshore Safety Alliance, we have had the ability to work closely with other companies who share our committed goal of conducting operations in a safe, healthy and environmentally responsible manner.

One of the unique aspects of the OSA is that its membership includes operators, drilling contractors and service companies. It welcomes all companies engaged in oil and gas exploration and production operations in the U.S. onshore space who are dedicated to the well-being of the industry's workforce and invested in having safe operating practices. This unique approach establishes a forum where all companies can discuss safety topics through open, thoughtful and honest conversations, and I believe in the long-term, our industry will benefit from this stronger collaboration and alignment of safety practices across operators and contractors.

To help build this alliance across the different industry segments, all OSA participants can take part in the governance and decision-making elements of the OSA, which not only helps build a sense of ownership but also ensures the support and active involvement of stakeholders. Through meetings and workshops – both in-person and virtually – Hi-Crush safety professionals are able to learn from and collaborate with other member company subject matter experts which will help us build on our accomplishments and become better stewards in our own community.

As a participant in both the OSA design and implementation phases, it is rewarding to see this team of operators, drilling contractors and service companies work together towards a common vision, the willingness to share and the collaboration to achieve a safer working environment for our industry.



Through the OSA, companies are raising the bar on safety together.

**Building
Industry Knowledge**

**Advancing
Safety Cultures**

**Reducing
Serious Incidents**



OSA PROGRAM SUMMARY

MISSION

The Onshore Safety Alliance (OSA) is a voluntary industry coalition committed to working together to reduce serious injuries and fatalities (SIFs) in U.S. onshore oil and gas exploration and production.

SERIOUS INJURIES AND FATALITIES

OSA DEFINITION

A serious injury and fatality (SIF) event is an incident or near miss that results in or has the potential to produce a fatal or life-altering injury or illness. Life-altering injuries or illnesses result in permanent or significant loss of a body part, organ function or otherwise permanently changes or disables that person's normal life activity.

Incidents can be classified as actual or potential SIFs. Identifying potential SIFs involves some subjectivity, but these incidents provide a key learning opportunity for the industry.

SIF events may also be referred within the industry as near misses, significant near misses, serious exposure, potentially serious incidents or high potential events.

BACKGROUND

All stakeholders within the natural gas and oil industry share the goal of maintaining safe operations. The OSA program is designed to enhance a company's existing safety program by leveraging the collective expertise of the industry and addressing processes and behaviors that can lead to SIFs.

It is framed around five areas within a typical company's operations, and these areas are designed to both align with participating companies' safety management systems as well as provide opportunity for program growth.

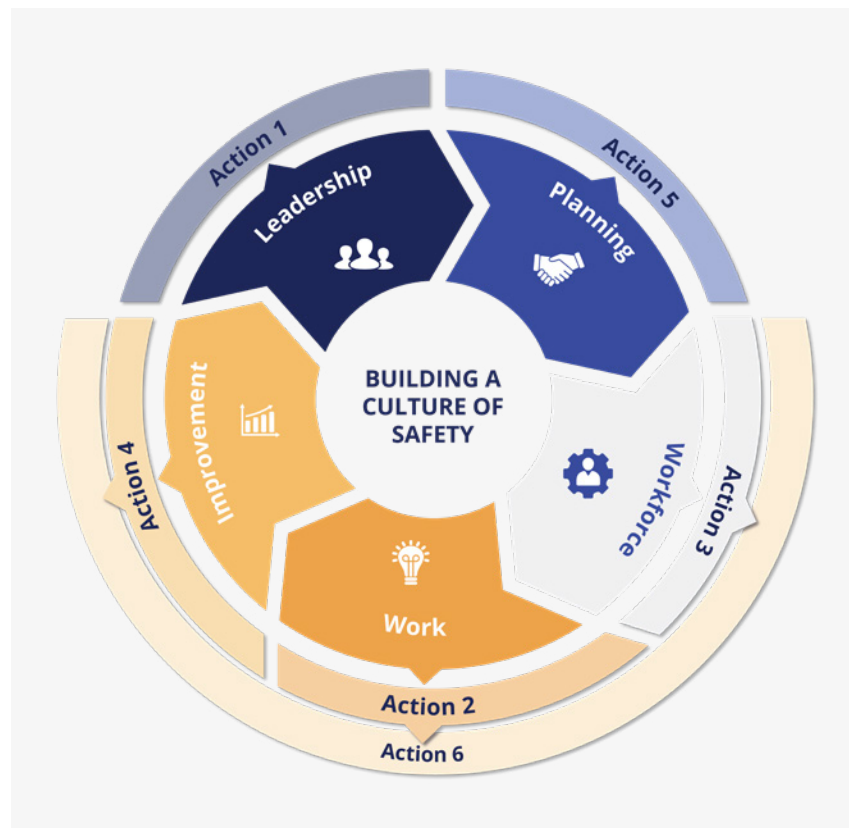
There are four core components to the OSA program – Participant Actions, Resource Library, Data Collection & Benchmarking and Industry Sharing & Learning. Each of these program components are intended to help companies improve their internal operations across the five areas.



| | |
|--------------------|---|
| LEADERSHIP | <ul style="list-style-type: none"> • Demonstrated commitment • Visible leadership • Objectives & resources |
| PLANNING | <ul style="list-style-type: none"> • Standards • High risk identification, evaluation and planning • Operational deviation planning |
| WORKFORCE | <ul style="list-style-type: none"> • Training & qualifications • Communication & engagement • Oversight & feedback |
| WORK | <ul style="list-style-type: none"> • Methods, procedures and safe work practices • Defined roles and responsibilities • Customer/Contractor management |
| IMPROVEMENT | <ul style="list-style-type: none"> • Event reporting, investigation & learning • Verification & follow-up • Monitoring & review |

PARTICIPANT ACTIONS

When a company joins the OSA, they commit to carry out defined safety actions within their organization as well as support the OSA program, its principles and data reporting and sharing requirements. Because every company is at a different point along their safety journey, the actions are designed to allow flexibility for companies to implement in a way that fits within their operations while still meeting the safety objective. There are currently six actions within the program which support both personal and process safety improvements. The actions help companies take meaningful steps within their operations to reduce hazards, prevent incidents within their organizations and build a culture of safety.



PARTICIPANT ACTION 1: Participate in and Support the Onshore Safety Alliance

AREA: Leadership
Implement the OSA participant actions within your organization and support the OSA Guiding Principles by sharing lessons learned from incidents and near misses with other program participants and providing data as specified by the OSA program.

PARTICIPANT ACTION 2: Implement a Life Saving Actions Program

AREA: Work
Implement a program, typically called LIFE SAVING ACTIONS (LSA), within your organization that educates and emphasizes the most critical safety hazards and key actions that workers can take to protect themselves and their colleagues from these hazards.

PARTICIPANT ACTION 3: Ensure Worker Awareness and Knowledge of Life Savings Actions

AREA: Workforce
Require that your employees on location have completed an orientation with a focus on all life saving actions and ask that contractors and subcontractors on location ensure that their workers have also completed an orientation with a focus on life saving actions.

PARTICIPANT ACTION 4: Implement a SIF Incident Investigation and Learning Program

AREA: Improvement
Apply:

- Investigative and learning processes, tools or methods to identify root causes and latent factors and to confirm corrective actions are in place that prevents SIF Events.
- A process that shares learnings related to the prevention of SIF Events.

PARTICIPANT ACTION 5: Perform Risk Assessments for Common Process Safety Hazards

AREA: Planning
Perform risk assessment(s) for potentially high-risk activities associated with drilling, completions, flowback, well service and ongoing production operations.

PARTICIPANT ACTION 6: Improve Effectiveness in Preventing and Mitigating High Consequence Well Control Incidents

AREA: Workforce Improvement Work
Take the following steps to improve the effectiveness of your well control programs:

- Create a well control barrier philosophy appropriate within your organization
- Verify that appropriate worksite personnel understand and maintain well control barriers and practices
- Ensure that appropriate worksite personnel are trained in well control methods through an accredited program
- Implement an internal method to track well control incidents and lessons learned to prevent future incidents

RESOURCE LIBRARY

The OSA provides guidance, best practices and tools to assist participating companies as they work to implement the Participant Actions within their organization. Companies may be at different places on their safety journey and may have different resource abilities to focus on safety. Where possible, the OSA seeks to leverage existing good practices and avoid duplication both across the industry as well as by individual companies. Individual companies should not have to expend resources unnecessarily to recreate safety tools and procedures from scratch. We also hope that through this sharing, good practices may be harmonized across the industry.

And because safety is not proprietary, the OSA has made these tools and its participant platform available at no cost to any company seeking additional safety resources through our website at onshoresafetyalliance.org.

OSA Risk Matrix

For the purposes of OSA guidance materials, the OSA has selected the below simplified 5x5 risk matrix to use in its guidance for learning educational purposes. OSA participants should select a risk matrix appropriate for its specific operations.

| Additional Qualitative Description (if applicable) | Risk Level (Method with combined Barrier and Consequence without Barrier) | | | | |
|--|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Expected minor injury (1-2) | 1 | 2 | 3 | 4 | 5 |
| Conditions may affect the usual (3-4) | 2 | 3 | 4 | 5 | 6 |
| Temporary conditions may affect the (5-6) | 3 | 4 | 5 | 6 | 7 |
| Permanent conditions may affect the (7-8) | 4 | 5 | 6 | 7 | 8 |
| Permanent conditions may affect the (9-10) | 5 | 6 | 7 | 8 | 9 |

Learning Objectives

| Learning Objective | 1 | 2 | 3 | 4 | 5 |
|-------------------------|---|---|---|---|---|
| Identify the risk level | 1 | 2 | 3 | 4 | 5 |
| Identify the risk level | 2 | 3 | 4 | 5 | 6 |
| Identify the risk level | 3 | 4 | 5 | 6 | 7 |
| Identify the risk level | 4 | 5 | 6 | 7 | 8 |
| Identify the risk level | 5 | 6 | 7 | 8 | 9 |

Learning Teams Methodology

Learning teams bring together those who are closest to the work to create a shared understanding of how work actually gets done in the field. This approach creates an environment of open communication, making it easier to understand the complexity of the work.

Working in Hot Weather

With the summer temperatures upon us, it is important employees are aware of the dangers associated with extreme hot temperatures and are prepared to work in them. To reduce the risks of heat stress you need to know when you are at risk, how to recognize the symptoms and what to do if symptoms occur.

Know the Heat Index

- As temperatures increase, so does your risk to heat illness.
- Download the [OSHA NIOSH Heat Index Safety Tool](#) to your smart device to assist in calculating the heat index, provide reminders of corrective measures, and review signs and symptoms and first aid measures of heat illness.
- As the heat index rises above 103°F, there is a high risk for heat-related illness, so additional measures to protect workers are needed.
 - Increase rest periods and determine appropriate work/rest schedules.
 - Reduce workload and pace strenuous work tasks.
 - Schedule most strenuous activities during the coolest parts of the day.
 - Remind workers to drink plenty of water every 15 to 20 minutes.

UNDERSTAND WHAT THE WELL IS DOING AT ALL TIMES

Highly intelligent condition
 1 - Surface Blowout
 2 - Changing Direction/Flow/Volume

Examples of Well Control Systems:
 1 - Mechanical Well Control System
 2 - Loss of Circulation Control System
 3 - Loss of Containment Well Control System
 4 - Well Control with Wellhead

Typing into Production, Well Control High Five, Typing Out of Production

WHAT IS A LEARNING TEAM?
 A learning team is a diverse group of people who are directly involved in a work activity or have useful information concerning an event.
 The purpose of a learning team is to learn and improve operational knowledge. Applying learning teams to the prevention of fatalities, serious injuries, and losses of containment results in stronger safeguards.

WHAT ARE THE KEY BENEFITS?
 Learning teams help tell the story about the complexity of the work we do and how work gets done in the field.
 Focus on identifying and strengthening safeguards
 Generate possible solutions in hours not weeks
 Identify error traps and latent conditions that other tools may not detect
 Engage the people that do the work resulting in

WHEN DO WE USE THEM?
 Learning teams can be used when things have gone well or when things have gone wrong. Learning teams can be applied to safety, reliability, and business processes.
 Explore normal and successful work/Proactive Learning: Evaluate safeguards and examine if they are aligned with how work is done.
 Learn from events

Relative Humidity (%)

Heat Index (Apparent Temperature)

With Prolonged Exposure and/or Physical Activity:
 Heat stroke or sunstroke
 Rhabdomyolysis
 Severe muscle cramps, and/or heat exhaustion likely
 Extreme Caution
 Severe muscle cramps, and/or heat exhaustion possible
 Caution
 Fatigue possible

Be Fit for Duty

Understanding Well Control Barriers

Uncontrolled Flow

Do I know what the well is doing?
 1) What barriers are in place & how do I know they are working?
 2) How am I monitoring the wellbore during this operation?
 3) What can go wrong during this operation?
 4) Do I have a plan in place for what can go wrong?
 5) Do I have the right equipment & crew I need?
 6) Does my team & crew understand what to do and why?

Pressure Reservoir Fluids

Mitigative Barriers
 Ignition Source Mgmt
 Bottom Hole Pressure Mgmt
 Effective Choke Drills
 Actual Well Design (Casing, Cement, etc)
 Effective PIT or QTI - MSCP known & understood
 Crew Responsibilities Known/Understood
 Applicable Alarms Set & Monitored
 BOPV Properly Pressure Tested & Maintained
 BOPV Properly Configured & Locked Up (Shut-In)

Preventive Barriers
 Well Control High Five
 Well Control with Wellhead
 Well Control with Wellhead

Resource Library

Participant Action 1
 Participate in and Support the Onshore Safety Alliance

Action:
 Implement all applicable OSA Participant Actions within your organization and support the OSA Guiding Principles by sharing lessons learned from incidents and near misses with other program participants and providing data as specified by the OSA program.

OSA Resources may be found at onshoresafetyalliance.org/Resources/Resource-Library



DATA COLLECTION AND BENCHMARKING

Participating companies also share SIF and well control incident data to help provide better safety benchmarking and data analysis specific to onshore exploration and production (E&P) operations. In time, we hope this sharing of data will improve industry knowledge and learning, identify trends to better target where improvement is needed within the industry and provide robust benchmarking for individual participants to assess how their performance is measuring against peers while maintaining individual company privacy. All shared data is aggregated or non-attributable and evaluated collectively to guide the program commitments, benchmarking and resources library.

INDUSTRY SHARING AND LEARNING

A key long-term objective of the OSA is to bridge industry knowledge through sharing of practices and learnings between the industry, regulators and the public. The OSA implements many tools to foster this sharing. Through standing work teams, conferences, forums and webinars, safety and health professional experts collaborate and share strategies, information and best practices to prevent and reduce incidents. These activities provide a forum where all companies – operators, drilling contractors and service companies – who are equally invested in having safe operating practices can discuss safety topics through open and honest conversations. As a collective, the industry benefits from a stronger collaboration and standardization of safety practices across operators and contractors.

OSA GUIDING PRINCIPLES

COMMIT TO THE REDUCTION OF INCIDENTS

We are an industry committed to the elimination of fatalities and life altering events.

DRIVE INDUSTRY IMPROVEMENT

We will use and make recommendations for the development of best practices that drive consistency for safe planning and execution of work.

WORK TOGETHER TO IMPROVE SAFETY

We will partner together as **operators, contractors and suppliers** to learn and share best practices to drive collective industry improvement in both personal and process safety.

BUILD A SAFE WORKPLACE

We will create a work environment where everyone feels accountable for their safety and the safety of others.



2021 SAFETY PERFORMANCE

Disclaimer: Data published in the Onshore Safety Alliance's (OSA's) 2021 Annual Report are based on data voluntarily reported by companies for U.S. operations. Although the OSA reviews reported data to identify internal inconsistencies, in general the OSA is not able to verify the accuracy of reported data. The OSA therefore cannot guarantee the accuracy of the data and disclaims any liability in connection with the data.

INTRODUCTION

One of the objectives of the Onshore Safety Alliance (OSA) is to use data to determine where the industry currently stands in terms of E&P onshore safety and track performance over time. In order to avoid potential duplication in reporting, the OSA has opted to present the data broken into three categories based on company type: operator, drilling contractor and service company.

For the first iteration of the OSA data collection, which covered calendar year 2021, 15 operator and service companies reported Serious Injuries and Fatalities (SIF) event data and 13 operator and service companies reported Well Control Incident (WCI) data directly to the OSA. Five drilling companies reported their incident data to the International Association of Drilling Contractor's Incident Statistics Program (ISP). Because of the different reporting mechanisms, the data presented across the three segments may not exactly align.

The OSA will utilize this data to work towards achieving goals outlined by our guiding principles – committing to the reduction of incidents, driving industry improvement, working together to improve safety and building a safe workplace.

2021 HIGHLIGHTS



20 companies shared incident information with the program.



Over 120 HSE professionals contributed to OSA work initiatives.



OSA participant companies range from **5 employees** to **over 70,000 employees**.



In 2021, **11 actual SIF events** and **214 potential SIF events** were reported to the OSA by **12 operator companies**.



Line of Fire was the top hazard for both actual and potential SIFs.



In 2021, operator companies reported **23 WCIs classified** as Level 1A, Level 1B or Level 2.



The overall **Actual SIF rate** for 2021 was **0.008 per 100 full-time workers**, and the **Potential SIF rate** for 2021 was **0.156**.

OPERATOR DATA

The data in this section will focus solely on the 12 operator companies that reported SIF data and WCI data.

SERIOUS INJURY AND FATALITY DATA

Incidents can be classified as actual or potential SIFs. Identifying potential SIFs involves some subjectivity, but these incidents provide a key learning opportunity for the industry. The concept of a SIF event has evolved within the safety professional community over the last several decades and is not unique to the oil and gas industry. Historically, focus has been placed on addressing total recordable injury rates (TRIR), as defined by OSHA, and progress has been made to successfully reduce these types of incidents. Now, many companies are advancing in their journey towards safety excellence by moving beyond TRIRs and expanding their focus to the elimination of serious injuries and life altering events. These events may also be referred to as near misses, significant near misses or high potential events.

For 2021, the OSA collected the count of SIF events by common hazard, broken out by Actual and Potential events. For all Actual SIFs, the OSA requested an associated incident report also be submitted. The OSA also collected the total hours worked for Onshore U.S. Operations in 2021 and used these hours to calculate an overall SIF rate, as well as a rate by common hazard for Actual and Potential SIFs. As reported to the OSA, in 2021, there were 11 Actual SIF events and 214 Potential SIF events. The overall Actual SIF rate for 2021 was 0.008 per 100 full-time workers, and the Potential SIF rate for 2021 was 0.156.

TABLE 1: SIF RATE PER 100 FULL-TIME WORKERS

| Actual SIF Events | Potential SIF Events |
|-------------------|----------------------|
| 0.008 | 0.156 |



Of the 11 Actual SIFs, the majority (55 percent) were attributed to Line of Fire. There were two events where a fatality occurred (Energy Isolation and Line of Fire) and nine events where a life-altering injury or illness occurred (Line of Fire, Energy Isolation, Safe Mechanical Lifting, and Bypassing Safety Controls).

FIGURE 1: ACTUAL SIF EVENTS BY COMMON HAZARD

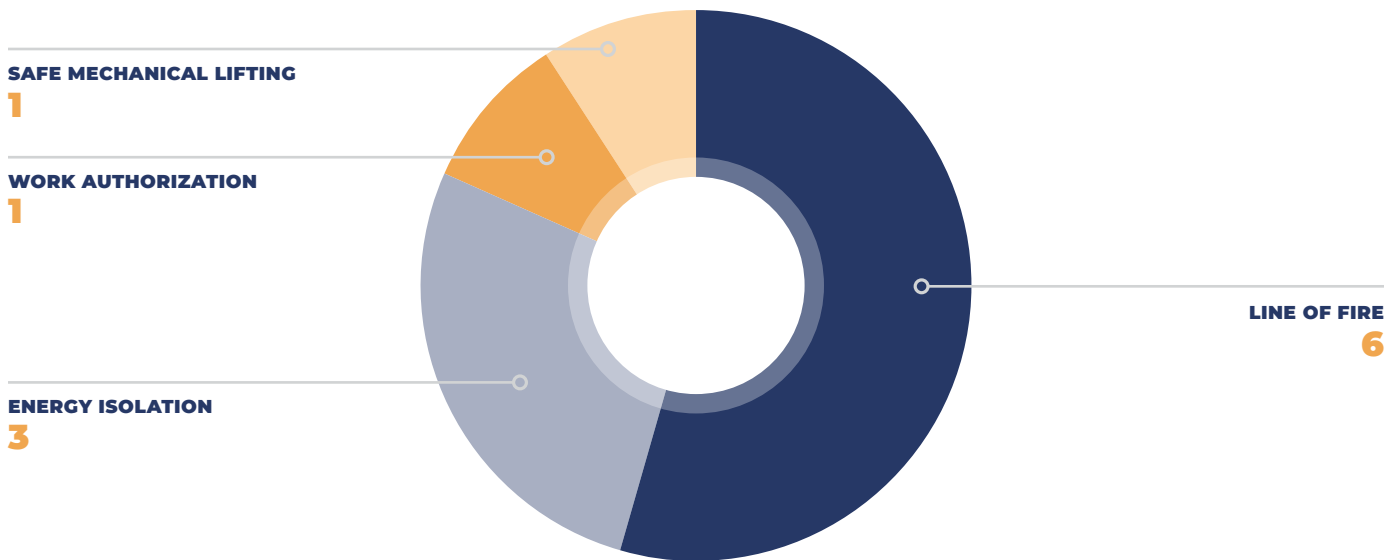
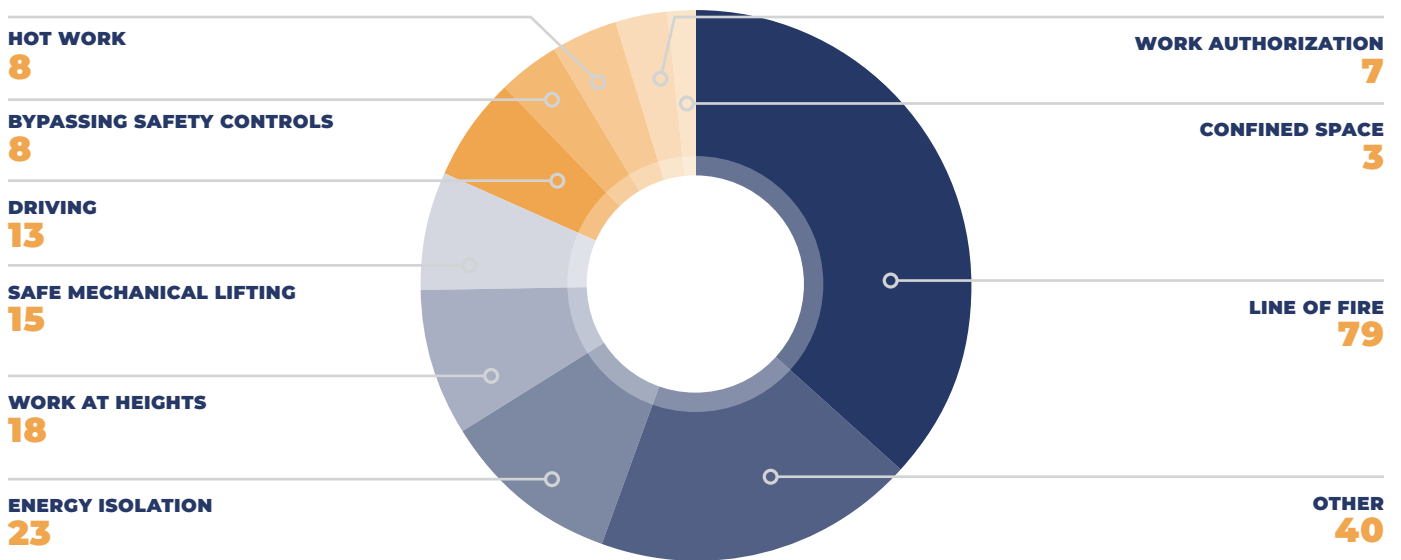


TABLE 2: ACTUAL SIF EVENTS BY STAGE OF OPERATION

| Common Hazard | Completion | Construction | Drilling | Production | Workovers | Other | Total |
|---------------------------|------------|--------------|----------|------------|-----------|----------|-----------|
| Line of Fire | 2 | 2 | 0 | 0 | 1 | 1 | 6 |
| Energy Isolation | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| Safe Mechanical Lifting | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Work Authorization | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Work at Heights | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bypassing Safety Controls | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Confined Space | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Driving | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 4 | 3 | 0 | 2 | 1 | 1 | 11 |

Of the 214 Potential SIFs, Line of Fire was again the common hazard with the highest reported number of potential incidents (37 percent). It should be noted that 19 percent of the reported potential SIFs were attributed to the Other category for common hazards. Incident reports were not required for potential SIFs, therefore the learning value of the incidents attributed to the Other category is limited to the information voluntarily provided by companies.

FIGURE 2: POTENTIAL SIF EVENTS BY COMMON HAZARD



WELL CONTROL INCIDENT DATA

The OSA defines a Well Control Incident (WCI) as the loss of well control and well control barriers. The OSA collected the count of WCI by Stage of Operation, broken out by Level 1A, 1B, 2, 3 and 4. Levels 1A, 1B, 2 and 3 were required, and Level 4 was optional for submission. For Level 1A, 1B and 2, the OSA asked operators to also submit an incident report.

TABLE 3: DEFINITIONS OF WCI LEVELS

| | Definition |
|-----------------|---|
| Level 1A | A well control event where uncontrolled flow of hydrocarbons or other fluids occurs and results in a surface release or hazardous underground flow that lasts longer than 60 minutes. |
| Level 1B | A well control event where uncontrolled flow of hydrocarbons or other fluids occurs and results in a surface release or hazardous underground flow that lasts 60 minutes or less. |
| Level 2 | Unintended influx or kick managed with a defined well control method but with complications. No uncontrolled flow occurs. |
| Level 3 | Unintended Influx or Kick managed with a defined well control method but with no complications. No uncontrolled flow occurs. |
| Level 4 | Proactive identification of improvements in well control equipment, training, processes or maintenance to prevent a well control incident. |

As reported to the OSA, in 2021, there was 1 Level 1A WCI, 2 Level 1B WCIs and 20 Level 2 WCIs. The rate per 100 full-time workers for Level 1A and 1B was 0.001, while the rate for Level 2 was 0.015. The majority of events occurred during the stage of operation Drilling, primarily Overbalanced or Conventional drilling.

TABLE 4: WCI BY STAGE OF OPERATION

| Stage of Operation | Level 1A | Level 1B | Level 2 |
|--------------------|----------|----------|-----------|
| Drilling | 0 | 1 | 17 |
| Well Intervention | 0 | 0 | 2 |
| Initial Completion | 1 | 1 | 1 |
| Abandonment | 0 | 0 | 0 |
| Other | 0 | 0 | 0 |
| Total | 1 | 2 | 20 |

TABLE 5: WCI RATE PER 100 FULL-TIME WORKERS

| Level 1A | Level 1B | Level 2 |
|----------|----------|---------|
| 0.001 | 0.001 | 0.015 |

TABLE 6: DRILLING WCI BY TYPE OF DRILLING

| Drilling Type | Level 1A | Level 1B | Level 2 | Total |
|------------------------------|----------|----------|-----------|-----------|
| Overbalanced or Conventional | 0 | 0 | 15 | 15 |
| Unknown | 0 | 1 | 1 | 2 |
| Returns Management Drilling | 0 | 0 | 1 | 1 |
| Total | 0 | 1 | 17 | 18 |

DRILLING CONTRACTOR DATA

Since 1962, the IADC Incident Statistics Program (ISP) has tracked safety and accident information for the drilling industry.

1

To record data reflecting accident experience which can be compared to other industries.

2

To identify causes and trends of drilling industry injuries.

3

To provide a means of recognizing rig crews for outstanding safety performance.

Participation in the ISP is voluntary and open to all Drilling Contractors. Accordingly, the information shared below on onshore U.S. land incidents includes information shared by both OSA drilling company participants as well as other drilling contractors that have activity in this space. OSA does not review submissions to the ISP for accuracy or represent that the data includes all ISP submissions.

Participating companies report all work-related recordable injury or illness cases that occur to participant employees (those assigned to rigs as well as shore based administrative and support personnel). Cases are reported according to the most appropriate category: Fatality (FTL), Lost-Time Incident (LTI), Restricted Work/Transfer Case (RWTC), or Medical Treatment Only (MTO). A fatality is a work-related injury or illness that results in death. Fatalities are included when calculating the Lost Time Incident (LTI) incidence rate and frequency rate. A Lost Time Incident (LTI) is a work-related incident (injury or illness) to an employee in which a physician or licensed health care professional recommends days away from work due to the incident. A Restricted Work/Transfer Case (RWTC) occurs when an employee cannot perform all of the routine job functions but does not result in days away from work. A Medical Treatment Only (MTO) incident is any work-related injury or illness requiring medical care or treatment beyond first aid (regardless of the provider of such treatment) that does not result in a Restricted Work/Transfer Case (RWTC) or Lost Time Incident (LTI). A Days Away/Restricted or Transfer (DART) case describes the number of recordable injuries and illnesses that resulted in days away from work, restricted work activity and/or job transfer that a company has experienced in any given time frame.



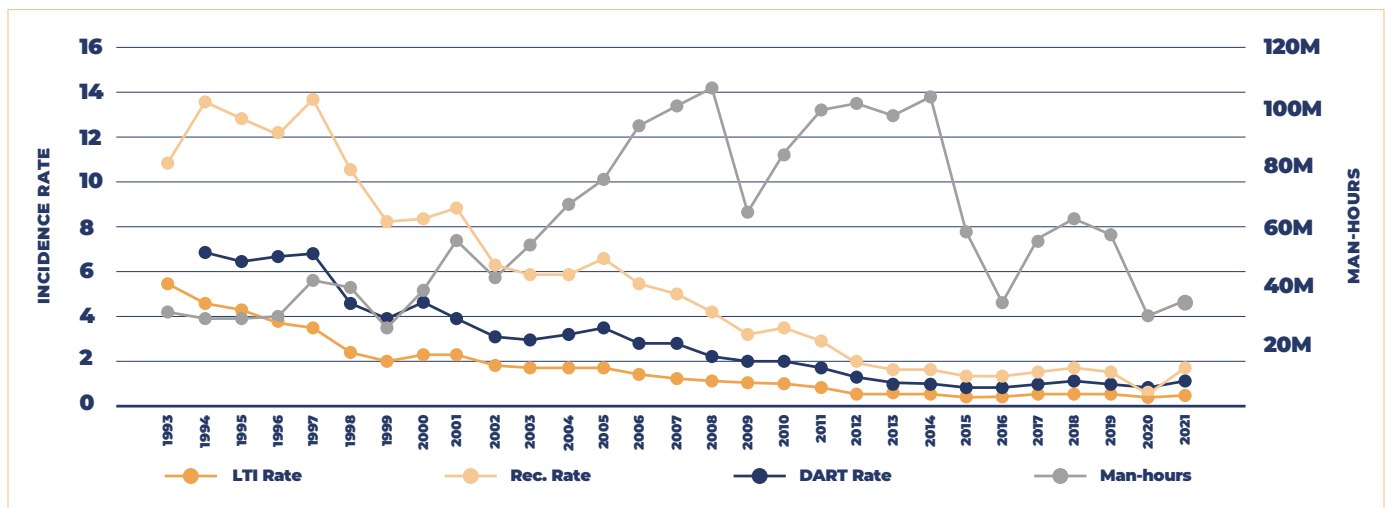
Below is a high-level summary of the ISP 2021 US Land Totals. You may find a much more detailed analysis of this information at IADC's ISP website located at iadc.org/health-safety-environment/incident-statistics-program

The following information was provided by 23 drilling contractors with activities in the U.S. onshore space.

TABLE 7: ISP 2021 U.S. LAND TOTALS

| | Total |
|-----------------------------------|------------|
| Total Man-Hours | 34,562,598 |
| Total Medical Treatment Incidents | 81 |
| Total Restricted Work Incidents | 113 |
| Total Lost Time Incidents | 77 |
| Total Fatalities | 1 |
| Total Recordables | 272 |
| MTO Incidence Rate | 0.47 |
| RWC Incidence Rate | 0.65 |
| LTI Incidence Rate | 0.45 |
| LTI Frequency Rate | 2.26 |
| Dart Incidence Rate | 1.11 |
| Dart Frequency Rate | 5.53 |
| Recordable Incidence Rate | 1.57 |
| Recordable Frequency Rate | 7.87 |

FIGURE 3: U.S. LAND TOTAL INCIDENCE RATES VS MAN-HOURS



SERVICE COMPANY DATA

In order to maintain the confidentiality of submissions, the OSA is withholding Service Company data from this edition of the annual report. In the future, we hope to expand this data collection effort to include more Well Service Companies.



ONSHORE SAFETY ALLIANCE
Learn more at: onshoresafetyalliance.org

Prepared by the American Petroleum Institute.
© 2022 - American Petroleum Institute (API), all rights reserved.