

INFRASTRUCTURE MODERNIZATION

HOW DO YOU KNOW IF YOUR ASSETS ARE VULNERABLE TO AN EVENT?

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Trending

As a leader, do you know if your asset is trending toward an event?

It is important for today's leadership to establish and reinforce a robust safety culture with focused operational & maintenance performance standards to lessen the potential for events. Operation of your facilities should be safe, predictable and reliable; industrial operations should be boring.

Industrial events are preventable if you practice engaged leadership by *inspecting* what you *expect*.

Events occur when operating and maintenance standards are unclear, not reinforced or never established.

Anatomy of an Event

British Petroleum (BP), an experienced industrial giant in the oil and gas industry, experienced the Deep-Water Horizon drilling rig event, in April 2010, and is a classic case study in the anatomy of an event.

At the time of the event there were 700 wells in the Gulf of Mexico drilling at depths of greater than 5,000 feet¹. Deep well drilling operations were being performed with oil industry proven technology, procedures, equipment and experienced crews throughout the gulf safely. However, BP experienced this



¹ (Bureau of Ocean Energy Management Regulation and Enforcement, September 14, 2011, p.13)

catastrophic failure while following their procedures to temporary abandon the well following drilling operations.

How could the BP Deep-Water Horizon drilling rig be destroyed, cause lives to be lost, trigger oil contamination of the Gulf and tens of billions of financial liability damages all within hours of receiving a safety award? This all occurred during what was considered routine deep-sea drilling operations. This event was the result of several contributing factors that were likely present for a significant period of time until a situation arose that allowed the organizational weaknesses to align and trigger the event.

Below are 20 common contributors to industrial events according to Hop Howlett (2001), Industrial Operator's Handbook.



A review of the Deep-Water Horizon government investigation reveals that 18 of the 20 common contributors highlighted above can be applied to the cause of the event. While it is clear in the report that the well casing failed along with subsequent failure of the isolation safety device, there are several latent issues in organizational culture that, if corrected, could have prevented the event. Among them, deferment of safety maintenance, operators proceeding with procedure after safety criteria was exceeded, operators' unfamiliarity with anomalies in drilling indications, incorrect engineering procedure, and lack of leadership command and control. The government report goes on to state that the event was "the

result of poor risk management, last-minute changes to plans, failure to observe and respond to critical indicators, inadequate well control response, and insufficient emergency bridge response training by companies and individuals responsible for drilling”².

These **Latent Organizational issues** are easily corrected with the right engaged leadership at all levels of an organization. Are you an engaged leader? Are people in your organization engaged? How do you know?

Third party assessments:

Engaged leadership requires courage and integrity. Inviting a third-party independent assessor to periodically come in and “peel back the onion” of your operation and provide meaningful feedback for areas needing improvement is a proven approach. After the Three Mile Nuclear incident in the late 1970’s the U.S. Nuclear industry took this concept to heart and has provided event free operations since. Other industrial operations can do the same without the process overhead required by nuclear safety standards.

You need to inspect what you expect! Below are recommendations to implement that will help you understand your organizational weaknesses, which once corrected will lessen your risk for serious industrial events. Additionally, the behavior cultivated will also yield improved production and efficiency because fundamentally, engaged leadership yields higher levels of trust and collaboration among teams at all levels.

- Establish a Field Observation program, where personnel observe operators and maintenance workers in the process of performing routine activities. Walk with your people and observe if they are conducting work and operations to your established expectations. Observe impediments to getting work done efficiently and safely. Take corrective actions to improve the way your people are performing work. Provide direct feedback and reinforcement to personnel on what was observed, positive behaviors and areas for improvement.
- Conduct periodic focused independent assessments of areas to include operations, maintenance, equipment reliability/health and safety.

² (Bureau of Ocean Energy Management Regulation and Enforcement, September 14, 2011, p.1)

Leadership Field Observations Deliver Results

Making industrial facilities safer and improving employee performance is more achievable than ever.

Black & Veatch's Leadership observation training uses customized, hands-on methods in training leaders in how to identify and correct behaviors. The program helps industrial facility leaders to understand standards and expectations to improve employee safety, operational efficiency and event prevention.

The leadership observation program reveals areas of human performance "drift;" or the difference between written standards and expectations and how work is actually performed in the field. Proactively working with employees to eliminate drift-rather than correcting them after an incident has occurred empowers companies to understand:

- How work is performed
- Factors that stand in the way of success
- The tools employees need to work efficiently
- Progress of an organizational change implementation

Leadership observation training is focused on refining and improving the performance management skills leaders use with employees. Putting these skills to work by engaging employees one-on-one helps leaders learn how to prepare and conduct observations that will improve employee behaviors, both immediately and over time.

Organizations using this proven methodology see improved operational performance results and employee relations almost immediately:

- Immediate, dramatic reductions in incident reports and equipment outages.
- Improved employee engagement within the first 12 months.

The most important outcome is a stronger culture of safety among employees; helping them become confident and more productive in the work they're doing every day.

Maintaining this culture is an ongoing commitment for leaders. The leadership observation course will provide leaders with the confidence, methodology, and know-how to perform employee observations in a positive and constructive manner.

Black & Veatch clients have expressed that after the training their leadership provided effective corrective actions with employee buy-in, which corrects human performance drift.

Their employees initially saw observations as a way to catch them doing something wrong. Now they see positive impacts to both safety & reliability performance, and welcome observations as a way to identify, and then remove, obstacles to their success.

Independent Assessments Identify Areas for Improvement:

Black & Veatch has highly skilled personnel that work in various industries across the globe and perform comprehensive performance assessments. The assessments uncover vulnerabilities to your operations and provide recommendations for improvement. The result is the improvement in overall operations and safety following corrective action implementation.

Where do I start?

It's simple. Give us a call and let's start by observing the quality of your team's pre-job briefs. This is the most effective place to start. Having a team that is great at conducting pre-job briefs should be the goal of every industrial operation leader.

Recommended Reading References:

1. Howlett II, H.C. (2001), The Industrial Operator's handbook, A systematic approach to Industrial Operations 2nd ed. ISBN -13: 978-1-57614-027-7
2. Bureau of Ocean Energy Management Regulation and Enforcement. (September 14, 2011). Report Regarding the Causes of April 20, 2010, Mercado Well Blowout. Online. Available: <https://ipjournalistsresource.org/wp-content/uploads/2011/09/DWHFINAL.pdf>
3. [Turner, B.A., Pidgeon, N.F. \(1997\). Man-Made Disasters 2nd edition. Butterworth-Heinemann.](#)

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A graduate of Aviation High School in New York City in 1975, obtained an F.A.A. A&P mechanics license following graduation and served for six years in the U.S. Naval Nuclear propulsion program on two fast attack submarines as a nuclear qualified electrician.

Following military service, Michael obtained a Reactor Operator and Senior Reactor Operator license on a BWR-6 reactor as Shift Supervisor while working at the Perry Nuclear Generating Facility. Managed maintenance and training at the Salem and Hope Creek nuclear facility. Participated in an 18-month assignment to the Institute of Nuclear Power Operations, where Michael evaluated nuclear-accredited training programs and member of several nuclear plant assessment teams.

Following his nuclear experience, Michael joined PSEG's non-nuclear generation company as a training manager and recovered the operations and technical training programs, which received industrial training awards. Following the recovery of the training program, Michael was Director of Outages for PSEG and provided oversight and governance of 13,000 MW of generation and 52 planned maintenance outages a year. Obtained his MBA while working at PSEG.

Michael Dammann currently is a Principal Consultant with Black & Veatch, and has 43 years of leadership experience in operating, maintaining, outage management, event investigation, and facility assessments around the world in the following industries: nuclear, coal, and hydro generation, electric transmission and distribution, oil & gas, water and wastewater. Obtained his Institute of Asset Management Certification. Michael developed and teaches a **Leadership Observation Training** course for organizations looking to improve safety and overall performance. In addition, he has developed and leads **Focused Facility Assessments** (safety, operations, maintenance, and asset condition/health).