The Pragmatic Development of Actionable Processes to Reach High-Reliability Goals

By Cory Worden, Ph.D. Candidate, M.S., CSHM, CSP, CHSP, ARM, REM, CESCO

There have been several instances in both writing and in spoken language in which I have called the safety profession ‘professionally paranoid.’ Later, as I’ve briefed high-reliability theory and operationalization, others have called me and the safety profession ‘paranoid.’ Some mean it as a compliment, a tell-tale of someone doing diligence through each operation. Others mean it quite literally, believing me and the concept of high-reliability to be an act of paranoid, being over the top and a loose cannon. Some have gone so far as to accuse me of being against the very organization I advocate for as though bypassing safety is a noble act of loyalty to one’s employer.

High-reliability organizations can be distilled down to those who strive to create the safest and most effective operations and then constantly re-assess these operations for any semblance of the possibility of failure so that it can be resolved before an incident occurs, including near-miss events. These high-reliability processes can be labeled as the high-reliability principles: Preoccupation with failure, reluctance to simplify, sensitivity to operations, deference to expertise and commitment to resilience. These principles often come across to the uninitiated as abstract concepts while to others, they counter the very hierarchal structures they’ve known since entering the workforce, military, public service or other organization. For example, while organizations are striving to meet customer satisfaction standards, regulatory compliance measurements and key performance indicators, how exactly does one display preoccupation with failure? What does that look like? Obviously, organizations are much attuned to operations and their outcomes, so how does an organization show sensitivity to operations? If an organization, especially military, fire protection and law enforcement units has had centuries of hardwired chains of command, how exactly do these teams learn to defer to expertise when that supposed expert is not the ranking person on the scene? (Christianson, Sutcliff et al., 2011). In short, how does high-reliability become operationalized?

Operationalization

In seeking to operationalize high-reliability theory and to create an organization consistently seeking the betterment of their operations, the timeline of an incident can be consulted (Worden & Lombardo, 2016). Within this timeline, all proactive measures such as hazard analyses, information programs and leading indicators fall to the left to the incident, a phenomenon Riley and Van Home of the United States Marine Corps referred to as striving to keep all actions to the left of bang (Riley & Van Home, 2014). All actions falling to the right of the incident are reactive, the actions responding, recovering and reconstituting from the incident. By placing operational, actionable activities around each element of the incident timeline, high-reliability can transition from an abstract concept to a pragmatic, actionable practice.
Hazard Analysis

Hazard analyses are an ongoing, constant practice of proactive organizations. Without consistent and recurring efforts to identify possible failure modes and means to resolve them, the organization will be vulnerable to unknown hazards and threats. With this, hazard analyses must first be completed through a process of brainstorming and also through a reactive process of identifying failure modes already observed. These analyses must cover possible hazards and threats and who in the organization is vulnerable to the hazard/threat. These hazards and threats can also be assessed by their function of frequency of previous occurrences and possible severity of consequence should the hazard/threat manifest itself. This can help in identifying which hazards/threats are more likely to manifest so that resources can be allocated to them more quickly when budget, manpower and other constraints are applicable.

With this, the organization has now created a pragmatic means to be preoccupied with failure. Additionally, by gathering information on processes, equipment and other factors in the workplace, deference to expertise is also now exemplified in an actionable process.

Hazard Controls and Information Programs

With hazards analyzed, hazard controls must be put in place for each to prevent or mitigate injuries or damage from the hazard. These hazards must be addressed with the most effective hazard control starting with elimination and moving onto substitution, engineering, administration and Personal Protective Equipment if not possible. Additionally, with any hazard control, training must be provided to ensure all affected employees know how to use the control, where it is located, how to maintain it and other means to the effective safe operations how enabled by the hazard control implemented.

With these hazard controls now in place and employees trained, an information program – everything from bulletin boards to safety huddles to emails to meetings to training sessions and everything in between – provides consistent and recurring reinforcement of the expectation of the use of the applicable hazard controls. Through these hazard control developments and their associated information programs, the organization has now created a pragmatic means to continue deferring to experts on each process to create the most effective hazard control while also beginning to engage in reluctance to simplify. Often, organizations will assume that employees have been trained on a process and that this will enable safe operations when, in fact, the most effective hazard control has not been implemented so the safest possible operations are not possible. The organization has tried to simplify the process where it should not have been.
Leading and Lagging indicators
With safe processes now implemented, the potential incident on the incident timeline falls between leading and lagging indicators. Leading indicators are the processes developed to validate whether or not the pre-determined safe processes and hazard controls are being operationally used and whether or not they are operationally effective and as safe as possible. For example, if the determined hazard control for a table saw is to use the machine guard over the point of operation/saw blade, a leading indicator could be an observation to monitor whether or not the guard is being used and also whether or not the guard is providing the proper safety as intended.

On the contrary, lagging indicators are the measurements of how many times and badly the consequences were – physically, financially and otherwise – when the hazard controls and safe work practices were not followed. For example, should the previously discussed machine guard not be used and incidents occur, lagging indicators – those indicators developed and measured after the incident has occurred – could be the number of incidents from the same causal factors, the causal factors themselves – such as lacks of training, lacks of equipment, human error or other – financial implications of the incidents or other. The major difference between leading indicators and lagging indicators is that a leading indicators provides critical data that can be used to prevent injuries while lagging indicators can be used to prevent future injuries but only based on data derived from injuries having already occurred.

In terms of high-reliability operations, leading and lagging indicators again allow for deference to expertise in that those most knowledgeable of the tasks at hand should be consulted to determine which indicators to determine, measure and analyze regardless of rank, title or position. Additionally, indicator development allows for sensitivity to operations in that these indicators should be developed to capture data during normal operational tempos so as to not interrupt workflows and also allow for a commitment to resilience in that lagging indicators, despite an incident having occurred, allow for resilience from the incident and a means to determine what went wrong, whether the safe process and hazard controls was followed/used, whether the safe process and hazard control was sufficient or if another culprit was at hand for the incident. In either case, a thorough investigation into the incident based on the applicable lagging indicators allows for a pragmatic means to operationalize the appropriate high-reliability concepts and to use them to benefit safety throughout the organization.

Ultimately, high-reliability organizations must understand and implement high-reliability principles as a real-world, pragmatic, operationalized part of their operations. These must exist in every part of the operation, every day. There cannot be a once-a-year safety stand-down. These high-reliability facets must be in effect every day during every operations with every employee. The line employee must have just as must influence on the safety of a process as the general manager, especially as a subject matter expert. There is a great deal of swallowing pride that goes into high-reliability concepts – without it, the concept cannot become realized. However, when realized, it can create a safety culture above and beyond all else.

References


Interested in being a vendor at the Monthly Chapter Meeting?

Sponsorship (Single Vendor Exclusive) Vendor
- $1,000 Exclusive Sponsorship (First Come First Serve Basis)
- Provide Drawing Prizes Benefits
- Recognition during the Meeting “Kick Off”
- 5 min presentation on your services/products
- 2 table spaces in the meeting room
- Display logo on Signage

Sponsorship (Multiple Vendors)
- $500 Sponsorship/Vendor
- Provide Drawing Prizes Benefits
- Limited to first 3 Vendors
- Recognition during the Meeting “Kick Off”
- 1 table space in the meeting room per vendor
- Display logo

Looking to advance your career?
Visit the ASSE’s Job Board at http://jobs.asse.org

Chapter Highlights

March Monthly Meeting
At the beginning of March we held our first networking breakfast. By participating in speed networking members were able to engage with other members and share experiences, learn, grow, socialize, and spark innovation. Thank you to all the members who came out and contributed to making the event a success!

Chapter Bylaw Changes for Upcoming Year
With the rollout of the new name change to American Society of Safety Professionals, the Gulf Coast Executive Committee has been diligently working on updating the current bylaws to reflect the upcoming changes. Along with the name change, additional changes have been proposed. The changes to the bylaws include:

- Article I, Section I: Society name change-American Society of Safety Professionals
- Article V, Section I: Add Student Liaison Chair as 8th delegate
- Article V, Section VI: The term of the President and Treasurer shall be two (2) years, and all other elected positions shall be one (1) year, from July to June 30
- Article VI, Section V: Update Bylaws to reflect current Society requirements for Sections
- Article VII, Section V: The Chapter shall remit 30% of Chapter dues of Section members of section for its use at the beginning of each term year

To review bylaws, go to gulfcoast.asse.org/download/1833/.

2018 Member Survey due by April 18th
ASSE Gulf Coast Executive Committee is interested in understanding your needs and improving programs and services.
Click here to take the survey
The survey should not take more than five minutes.
Thank you in advance for your participation!
Member-Refer-A-Member Drive

Tell your friends and colleagues about ASSE and encourage them to join during the Member-Refer-A-Member Drive going on through the end of May.

A drawing will be held at the end of the drive and one winner will receive an iPad. The more members you refer, the more chances of winning! All new members and even those who referred new members will receive a thank you gift.

Instructions to apply:

- Submit an online member application at www.asse.org/membership/becomeamember/
- Enter sponsor name in appropriate field on application (referral)
- Use promo code 182GULF at checkout to waive the $25 Gulf Coast application fee and to be entered into drawing

2018/2019 ASSE GCC Executive Committee Nominees

Nominee for President / Delegate #1 – Tabitha Laser
Tabitha is the Health and Safety Global Practice Leader for CH2M and has more than 23 years of operations and consulting leadership experience. She earned Bachelor of Science and Master of Science degrees from the University of Central Missouri, and is a Certified Safety Professional. Tabitha is currently serving as the Gulf Coast Chapter President and in addition has also served as Gulf Coast Chapter Energy Corridor Section Chair, ASSE CFL Ag Branch Chair, Vice Chair and Secretary, ASSE St. Louis Chapter Membership Chair, and ASSE National Ag Practice Specialty Vice Chair.

Nominee for Sr. Vice President of Communications / Delegate #2 – Jovan Lora
Jovan is a Sr. EHS Specialist at BASF. In this capacity, his responsibilities include leading and implementing the EHS programs in area of responsibility within a large manufacturing site. Jovan has been in the EHS field for over 15 years, with over four years in the Chemical Manufacturing Industry. He earned a B.S. in Occupational Safety and Health from Columbia Southern University, and a Master of Engineering (MEng.) in Advanced Safety Engineering and Management from the University of Alabama at Birmingham (UAB). He is a Board-Certified Safety Professional (CSP) and an Occupational Safety and Health Technologist (OHST). Jovan joined the ASSE in 2009 and has served on the Executive Committee in a variety of roles, including Treasurer and Vice President for the West Florida Chapter of the ASSE, and as Program Chair, VP of Member Services and is the incumbent ASSE Gulf Coast Chapter SVP of Communications.

Nominee for Vice President of Member Services / Delegate #3 – Dustin Hickey, CSP, ASP
Dustin is Division Safety Manager of Texas Operations for Cajun Constructors, LLC, one of the nation’s leading industrial general contractors. Dustin is a Certified Safety Professional (CSP) and holds a Bachelor of Science degree in Occupational Safety & Health. Dustin has successful managed safety programs for large projects with global clients including but not limited to ExxonMobil, LyondellBasell, Dow Chemical, Shell, Flint Hills, Celanese, British Petroleum (BP), Enterprise Products, Tenaris, BASF Chemical, Formosa Plastics, Praxair, Braskem, Ineos, Marathon Petroleum, and Chevron Phillips.
Nominee for Secretary/ Delegate #4 – Krystle Hodge
Krystle Hodge is a HSE Coordinator for Southwestern Energy in Houston, Texas. She received her Master of Public Health degree from The University of Texas School of Public Health and Bachelors in Biology from University of Houston-Main Campus, and is a recently Certified Safety Professional (CSP). Krystle joined ASSE in 2014 and has served on the Executive Committee as the Newsletter Chair and most recently the Secretary. She also is the current Content Coordinator for ASSE Blacks in Safety Engineering (BISE) and a member of ASSE Women in Safety Engineering (WISE).

Nominee for Secretary/ Delegate #4 – Krystle Hodge

Treasurer/ Delegate #5 – James Charo (No election – 2 year term)
James has over 18 years specialized experience in the Health, Safety, Environment field. His experience includes both foreign and domestic assignments working for industry leading organizations. James has served on the ASSE Gulf Coast Chapter Executive Committee for the past 3 years as Secretary and Treasurer (2 year term).

Nominee for Program Chair / Delegate #6 – Jessica Good, GSP, ASHM
Jessica Good is an Industrial Hygienist for LyondellBasell at one of the largest refineries in the United States. Prior to LyondellBasell, she was a HSE Specialist for the Brock Group, a large specialty construction company with fourteen VPP sites. In her role at the Brock Group, she provided Industrial Hygiene support and she also assists in program development. She holds a Bachelor’s Degree in Industrial Hygiene and Safety from the University of Houston – Clear Lake, and the Graduate Safety Professional certification from the Board of Certified Safety Professionals. Jessica has served as the Newsletter Chair for the Gulf Coast Chapter and in addition previously served as Student Section President at the University of Houston-Clear Lake.

Nominee for Newsletter Chair / Delegate #7 – Doug Rush CSP, CIH, CHMM
Doug is the Principal of Scopus Consultants. He is a hands-on, results driven HSE professional services leader with greater than 30 years of leadership in senior HSE operations and management. He has founded and owned 3 full service HSE consulting firms with a staff of up to 40 fulltime professionals. His experience has been focused in engineering entities and Fortune 500 Companies positioned locally and internationally.

Nominee for Student Liaison / Delegate #8 – Magdy Akladios, PhD, PE, CSP, CPE, CSHM
Dr. Akladios is a Tenured Professor at the University of Houston-Clear Lake (2005-present), before which, he worked at West Virginia University (1996-2005) also as an academician. Dr. Akladios’ education includes a PhD in Industrial Engineering, a Master’s degree in Industrial Engineering, a Master’s degree in Occupational Health & Safety (Industrial Hygiene), an MBA, and a BS degree in Mechanical Engineering. In addition, he is also a Board-Certified Safety Professional (CSP), a Professional Engineer (PE), a Certified Professional Ergonomist (CPE), a Certified Safety & Health Manager (CSHM), and a Certified Member of the Egyptian Syndicate for Mechanical Engineers. He is also a member of the Industrial Engineers’ Honorary Society (Alpha-Pi-Mu), a member of the Human Factors & Ergonomics Society (HFES), and a Senior member of the Institute of Industrial Engineers (IIE).
Dr. Akladios is also involved with non-academic credit and continuing-Ed training centers such as College of the Mainland (COM), and has provided consultation services for a number local oil companies including ExxonMobil, ConocoPhillips, BHP Billiton, Humantech, TransCanada, etc., in ergonomics.
Upcoming Meeting and Events

ASSE & AIHA Gulf Coast General Chapter Meeting

Date: Thursday, April 5, 2018
Time: 11am-1pm
Location: San Jacinto Central campus
8060 Spencer Highway, Pasadena TX
Speaker: Darryl C. Hill, Ph.D., CSP
Topic: Center for Safety & Health Sustainability: Why Human Capital Project?

Energy Corridor Section Meeting

Date: Thursday, April 12, 2018
Time: 11:00-1:00pm
Location: Wood Group – Stallion Building: 17325 Park Row, Houston TX
Speaker: Tracy Lamb, BA, Avn., MBA, Avn. ATPL
Topic: Risk Management of Drone Operations

1st Gulf Coast ASSE Crawfish Boil and Networking Event

Date: Saturday, April 28, 2018
Time: 12pm – 4pm
Location: 21523 Indigo Hill Lane Katy, TX 77450

Join us for our first crawfish boil and networking event! Guests are invited to bring family members with them. Some games (horseshoes, washers, etc.) will be set-up. The swimming pool will be open, however there will be no lifeguard. ASSE will supply crawfish, potatoes and corn, hot dogs, chips, soft drinks and water. Guests are free to bring their own adult beverages or any other food or drinks they require.

This event is free to members and their families.

All guests must register no later than 5 pm Friday 4/27/18. For more details and to register, visit https://gulfcoast.asse.org/events/1st-crawfish-boil-and-networking-event/
FREE Safety Trainings
April – June 2018:

- Field Leadership for Fall Prevention in the Construction Industry
- Coaching for Managers and Leaders
- Fatigue Management
- Houston Fall Prevention Safety Day
- Practical Ergonomics for Beginners
- Fleet Safety & Vehicle Risk Mitigation (Non Dot)
- Disaster Preparedness: Lessons Learned from Major Storms Katrina, Rita, and Harvey
- Organizational Challenges and Tactics for Safety
- Construction Site Safety Awareness

http://www.com.edu/gcsi/free-training

27th Annual Sabine Neches Chapter Golf Tournament

Date: Friday, April 6th
Location: Bayou Bin Country Club

To register/sponsor and more details, visit https://snc.asse.org/

Professional Development

Register today for Safety 2018!

June 3-6th
San Antonio, Texas

- 5,000+ OSH professionals
- 20 hours of IACET accredited education
- CEUs
- Region III Night Out

To register and get more details on Safety 2018, visit safety.asse.org!
Volunteer Opportunities

Boy Scout Fair Volunteers Needed – April 14, 2018

For two decades, the ASSE Gulf Coast Chapter has assembled a Health & Safety Team to support the Sam Houston Area Council’s (SHAC) Scout Fair. Over 20,000 Boy Scouts and leaders from sixteen surrounding counties will converge on NRG Arena to display their Scout skills. This year’s theme is “Cleared for Launch” and we are partnering with Space Center Houston. The Health & Safety team walks around the event and inspects booths, games and cooking displays. No prior experience is necessary and safety rules will be communicated so you know what to look for at the event. Volunteers are needed for the following dates and times:

- Saturday, April 14th @ 9 am – 12:30 pm
- Saturday, April 14th @ 12:30 – 4 pm

If you are interested in helping please contact Mike Narvaez at 281-509-3443 or e-mail him at coachmike19@gmail.com. Volunteers always have a great time and the event is open to the public so feel free to bring out your families.

Student Section

OSSA Applications Due April 1

Attention Student Sections: The Outstanding Student Section of the Year Award (OSSA) applications are due April 1st. This is a great opportunity to earn recognition for your student section’s achievements. As you set goals and plan meetings and events please keep the OSSA requirements and criteria in mind.

Attention Student Sections: The Outstanding Student Section of the Year Award (OSSA) applications are due April 1st. This is a great opportunity to earn recognition for your student section’s achievements. As you set goals and plan meetings and events please keep the OSSA requirements and criteria in mind. The winning student section will receive a $6,000 award. Student Sections who meet the annual minimum criteria, but do not win the Outstanding Student Section of the Year Award will receive $500.

Please visit http://www.asse.org/membership/ossa/ for the annual reward requirements, the application, and to see past winning applications.