![AERO]

# ADVANCED ERROR REDUCTION IN ORGANIZATIONS (AERO)
## Case Study

## Background

Our California-based client had a very mature safety and performance culture. Greta L., VP Operations was justifiably proud of the company's long history of investment in their people, world-class leadership, innovation and a commitment to safety. Yet even with all of these superior management elements, Greta and her team were struggling to solve the breakdowns.

## Breakdowns (Issue)

The main challenges that our client needed to address were:

- Elimination of Fatalities
- Reduction and prevention of Serious Injuries
- Standardized workflow management
- Reduction of incident rates
- Improvement of critical procedures

## Solution (Action)

As separate consulting companies engaged with the client, Greta and her team asked both Equilibria and Fisher Improvement Technologies to create a consulting partnership to combine our unique expertise and assist them in overcoming all of these challenges in a sustainable way. The company approved a comprehensive Advanced Error Reduction in Organizations (AERO) deployment.

Here are the key elements of the deployment:

1. Collaborated with the client to determine best possible deployment path to integrate our deployment expertise with the client needs for the specific business unit, which included:
   - o Integration with existing Validation & Verification teams to enhance value
   - o A dedicated consultant to work as a project manager
   - o 2 dedicated coaches throughout the deployment and integration process
2. Started deployment of AERO fundamentals with senior leaders
3. Continued with managers
4. Developed Advocates & coached Supervisors
5. Completed procedure writing classes
6. Carried out minor incident investigation classes
7. Performed Train the Trainer sustainability model
8. Client deployed AERO awareness sessions facilitated by internal trainers
9. Utilized follow-up coaching to ensure trainer capability
10. Dedicated integration field (on-site) coaching to ensure effectiveness
11. Executed follow-up assessments and pulse checks to ensure objectives were met
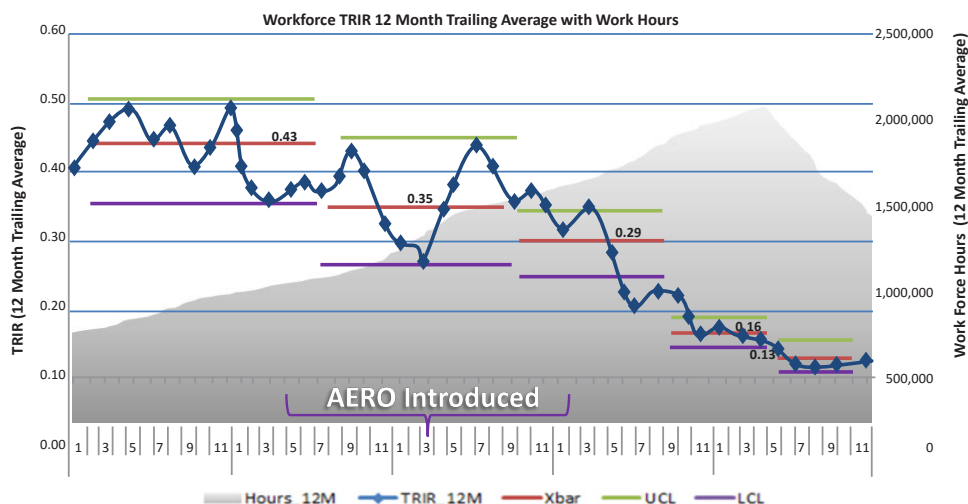
## Results (Outcome/Measurement)

Below are the immediate results (within 18 months) achieved during and after the deployment:

- Fatality free for the first time, years 2014, 2015 and 2016 (to date)
- Severe drop in serious injuries
- Trained over 2500 employees and contractors on budget and within time scope
- Noticeable procedural error rate decrease
- Common language established in field operations
- Feedback from field to improve key Serious Injury and Fatality potential task processes
- Enhanced communication and teamwork through recognition of different personality tendencies
- Improved ability of leaders to connect with people in the field

During an internal evaluation carried out by the client to assess the viability of a global deployment, a contractor field worker was asked if he thought that the company should invest in a world-wide roll-out given the current cost constrained environment in O&G, his answer was "I believe you cannot afford not to".

### TRIR Chart



Workforce TRIR 12 Month Trailing Average with Work Hours

AERO Introduced

0.43    0.35    0.29    0.16    0.13

Legend: Hours_12M — TRIR_12M — Xbar — UCL — LCL

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# Senior Leader Interview

As part of the assessment phase, the most senior leader within the client organization was interviewed to gather qualitative data. We believe the answers provided in the interview will be useful to senior leaders within organizations considering an AERO deployment. The answers captured in this interview have only been edited to remove client specific references.

## What would you describe as the main benefits of utilizing AERO across the enterprise?

- The main benefit of AERO is empowering the workforce, especially those engaged in high consequence work, to be able to predict, manage, and prevent error-likely situations in their daily work, which drives us to be a much safer and more efficient organization. The workforce is able to do this by understanding how error traps and personality tendencies (their own and their coworkers') put them at potential risk. They are also able to apply the appropriate tools during critical tasks and any time they are in knowledge-based performance mode (between 1:2 and 1:10 baseline error rate).

## What measurable KPIs and tangible results have been met and achieved since the first Senior Leader session and Advocate class in June 2014?

- Deployment metrics have all been achieved or exceeded compared to plan regarding development of AERO course content, Train the Trainer, number of classes conducted, number of employees and contractors in attendance, union engagement, and process integration.
- AERO has reenergized the workforce around Serious Injury & Fatality Prevention and instituted a common language across the organization. This has driven unprecedented alignment between Operations, Construction, Drilling & Completions groups. Additionally, AERO has been effectively integrated into our Leadership Accountability and Culture as well as many existing processes including Incident Investigation & Reporting, Critical Operating Procedures, monthly management messaging, Verification & Validation, Accountability Model, and even enhanced workers' understanding of when and how to best utilize out Stop Work Program.
- We now have 15 internal trainers to ensure sustainability.

## Which functions within the business unit have been exposed to AERO?

- The entire workforce has been exposed to AERO through monthly Operational Excellence topics and short overviews during safety meetings. Classroom training was focused on employees and business partners conducting or managing high consequence work (specific groups listed below).
  - o Employees in the following functions: Operations and Maintenance, first-line Operations Supervisors, field-based Facilities Engineers, Drilling and Workover Site Managers, abandonment/environmental, most HES professionals, and some other support/staff folks
  - o Contractors working on drilling, workover, or production/hub rigs
  - o Supervisors and leaders for the above groups
- Business unit leadership team
- In total 2340 people (in November 2015) were trained (1272 employees and 1068 contractors) in 92 classes (1 Manager, 1 Train the Trainer, 2 Advocate, 20 Supervisor, 68 Awareness)

## Which lagging indicators have been positively impacted - eg LTI, TRiR Rates, Efficiency, Reliability, RCA's etc?

- AERO has been a major contributing factor in driving us to become more of a learning organization, driving deeper understanding of causal drivers of error traps in the Root Cause Analysis of Incident Investigations. Error traps are being acknowledged in our Stop Work Program, Near Miss reporting, and barrier model development.
- Year on year since we started the deployment, our lagging performance has improved in every measure by 20 – 50%. AERO is rapidly growing to be a part of our culture and has had a significant impact, especially in the area of helping workers recognize when they are working in more error likely knowledge based mode (between 1:2 and 1:10 baseline error rate) and use tools to enable them to work in rule based mode (1:100 baseline error rate up to 1:10000 using the right AERO tools).

## What would you describe that another business unit can expect to gain by implementing AERO?

- All of the above. In addition, leaders should commit to be personally involved to be an active and visible contributor to help the workforce implement AERO in daily application as well as champion process integration.

*Realizing Potential*

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