DYNAMIC POSITIONING CONFERENCE

OCTOBER 9-11, 2017

DESIGN/OPERATIONS

Simulation Based After Action Review

David Milne, Doug Olson

Noble Corporation

Structural Integrity

Simulation Based After Action Review

MTS DP Conference 2017

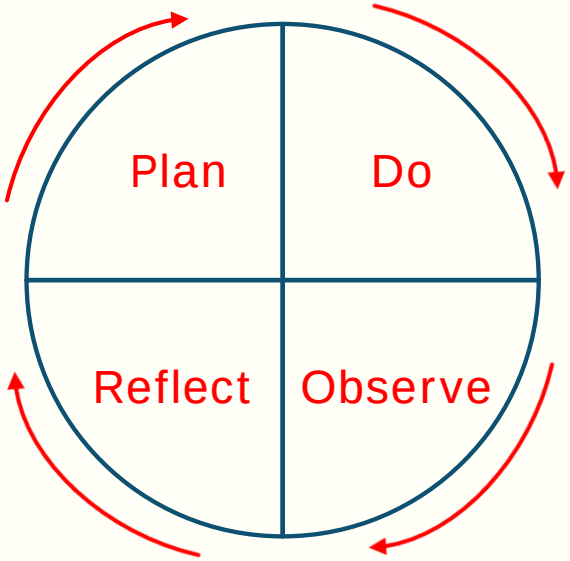
David Milne

Overview

- Conventional After Action Review (AAR)
- Noble Case Study
- Simulation Based After Action Review (SBAAR)
- Proposed Methodology
- AAR vs. SBAAR
- Applications

After Action Review

- Developed as a learning methodology in the 1970s by the U.S. Army
- Adopted by business in the late 1990s
- Discussion of an event or action with individual(s) involved
- Capture lessons learned to improve future performance

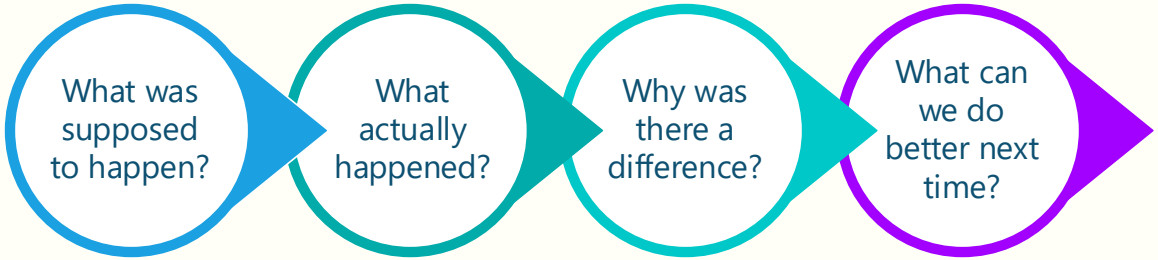


AAR Formats

- Formal
  - Resource intensive
  - Significant planning & preparation
  - External observers or facilitators
  - Conducted wherever best supported
- Informal
  - Little to no preparation
  - Short in duration

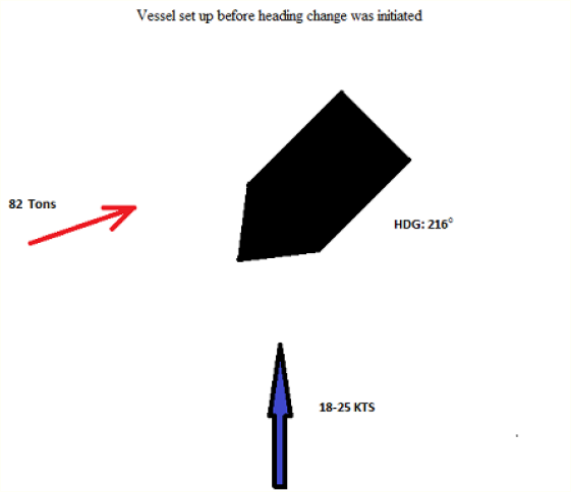
AAR Methodology

- 4 Basic Questions
  1. What was planned?
  2. What really happened?
  3. Why did it happen?
  4. What can we do better next time?



Case Study

- DP Incident – Loss of Position
  - 180° heading change in loop current
  - Unlatched with >4000’ riser suspended
- Commence Incident Investigation
  - Simulator initially utilized as part of investigation
  - Decided to conduct AAR at NobleAdvances Training and Collaboration Center



Case Study

- Planned to Conduct Split AAR
  - Morning – Table Top (Conventional AAR)
  - Afternoon – Simulator Time
- Observed Obstacles
  - Difficult to foster open dialogue
  - Struggled to focus discussion incident causal factors/root causes

"At the beginning of the discussion, there was misalignment, lack of trust and defensive postures adopted by the three crew members. They felt attacked by the facilitators and it was obvious that they did not agree about why the event had occurred. The morning session was spent discussing the failure and attempting to get them aligned."

- Noble Drilling Superintendent

Case Study – Simulator

- Configuration & Setup
  - Conditions same as incident
  - Professional workspace
- Crew Conducts Failed Maneuver
  - Similar results from incident
  - Validates simulation
- Repeat, Repeat, Repeat
  - Allow crew to test theories
  - Prompted crew to focus on improved team strategies

Simulation Highlights

- Identical Equipment
  - Familiarity
  - Workplace Environment
- Immersive Simulation
  - Complete Bridge Package
  - Focus on Realistic Environment
- Controlled Environment
  - Barriers broken down
  - Promotes team/self awareness

Simulator Observations

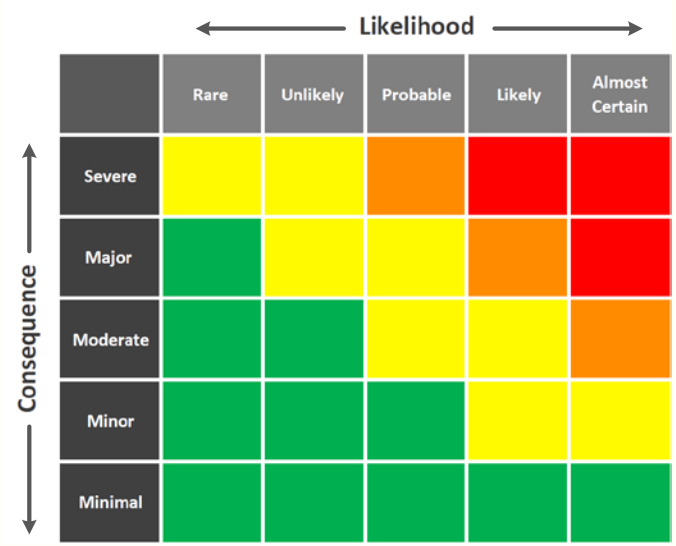
- Test Lab
  - Crew able to test each theory/hypothesis
  - Knowledge acquisition
- Human Factors
  - Visibility
  - Confront failures
- Team Dynamics
  - Alignment of perspective
  - Practice good behaviors

"One of the biggest learnings I came away with as a manger was the chance to observe the operators in a controlled environment, listen to their ideas, allow them to test and practice their ideas … This improved how we interact for such events or maneuvers on the ship now."

- Noble Master

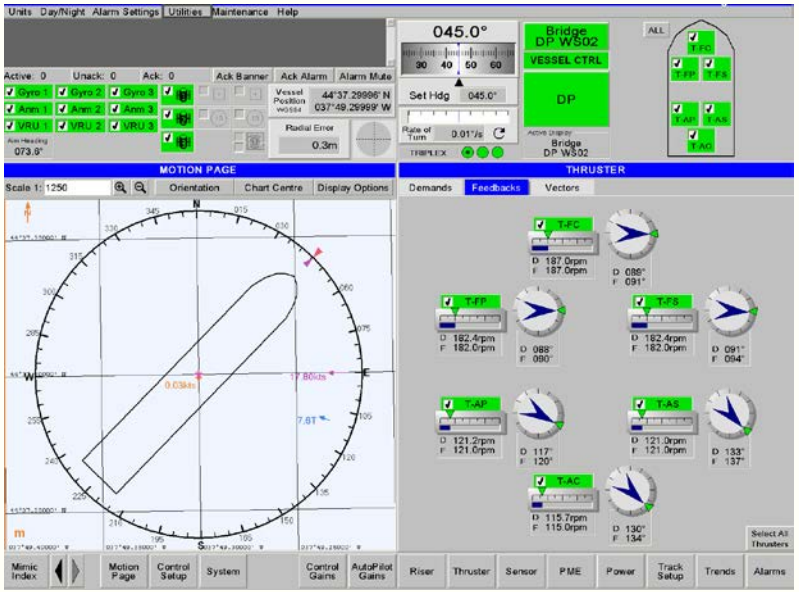
SBAAR Blueprint

- Identify Need
  - Risk Potential
  - Causal Factors
  - Available Resources
- Feasibility
  - Recreation
  - Realistic
  - Accuracy



SBAAR – Preparation

- Data
  - Retrieve & Compile Data
  - Crew Statements
- Event Review
  - Organize & Filter Data
  - Establish Event Timeline
  - Neutral Party
  - SME(s)



SBAAR – Preparation

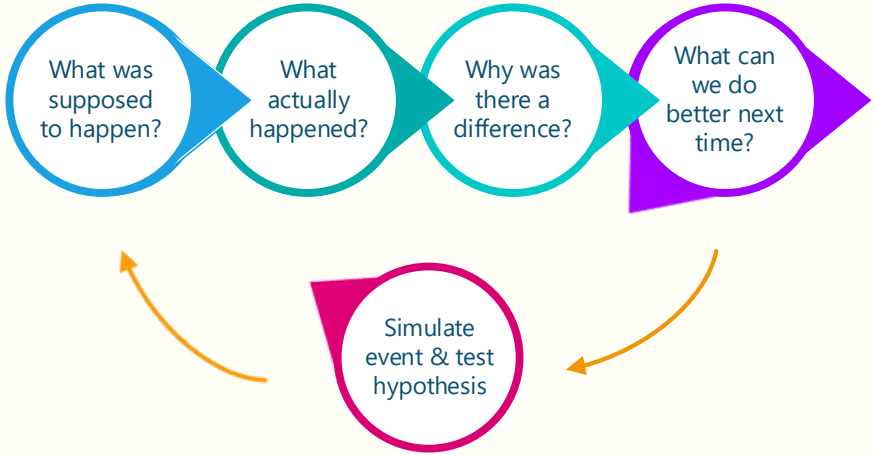
- Prepare Simulation
  - Emphasis on Recreation
  - Test & Validate
- Identify Goals
  - What went well?
  - What could be improved on?

SBAAR - Execution

- Introduction
  - Plan
  - Ground Rules
  - Event Recap
  - Goals
- Simulator
  - Replicate Event
  - Crew Actions Unchanged

SBAAR - Execution

- Initial Observations
  - Open discussion
  - Theories for improvement
- Repeat Simulation
  - Test theories
  - Practice positive behaviors
- Observe & Repeat
  - Reinforce through repetition
  - Allow crew to identify solutions
  - Facilitator(s) steer if needed



SBAAR - Execution

- Debriefing
  - Crew Driven
  - Event vs. Simulation
  - Seek Consensus
    - Crew Performance
    - Decision Making / Risk Identification
    - Human Factors
- Conclusions
  - Summarize Learning(s)
  - Causal & Contributory Factors

"The use of simulators in AARs allow personnel to practice their technical decision making in an environment where they are able to make mistakes without suffering the real-world consequences. For events where we made the wrong decision, we are able to understand why the particular failed decision was incorrect and also learn what would have been the best choice given a similar condition."

- Noble Drilling Superintendent

SBAAR – Takeaways

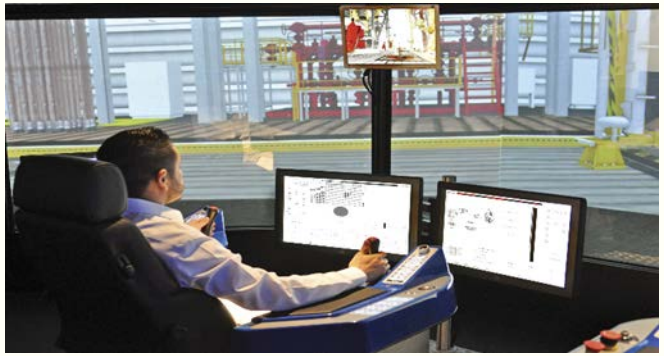
- Corrective Actions
  - Individual Performance
  - Team Performance
  - Management System
- Organizational Learning
  - Distribution of LFI
  - Incident Prevention

SBAAR vs. AAR (Traditional)

- Resources
  - Access to Simulator
  - Planning/Preparation
  - Cost
- Limitations
  - Accurate Recreation
  - Realistic Environment

SBAAR Applications

- Station Keeping Incidents
- Stability & Ballast Control
- Crane / Lifting Operations
- Drilling Operations
- Well Control
- Integrated Operations
- SIMOPS



Any Questions?