Crew Resource Management Training

Improve your integration of people, equipment and processes, by training those cognitive, social and interpersonal skills that underpins safe and efficient teams.
Integration is key!

At Maersk Training we aim to ensure full integration between technical competences, fully functional crews/teams and strong leadership. The technical/non-technical skill imbalance is particularly pronounced within High Reliability Industries where the consequences of failure are far greater and more costly for humans and the environment. Traditionally, supervisors, managers and leaders have quite rightly been selected on the basis of their technical knowledge which in turn leaves their non-technical skillset undeveloped. The result of this underdevelopment is less effective supervision, underperforming management and a failure to understand how to maximise teams and develop subordinates.

Aside from the supervisory skills gap that emerges, it is also vital to acknowledge that humans can only maintain focus for limited periods of time. Human memory capacity is finite and humans often overlook critical information when making decisions. In addition, biases exist at every decision making avenue, challenging judgement and how effective we believe ourselves to be. Individuals and teams need to be aware of their individual and collective limitations and supervisors need to adjust their approach to account for Human Factors in order to deliver enhanced performance.

In challenging and highly competitive market conditions, the ability to realise the true performance potential of the team is what defines a competitive advantage. But without the right leadership, communication, team building and motivational tools at hand, operational leaders are often unable to bring the very best out of their teams. Maersk Trainings Integrated Operations Concept improves safety and operational performance – from the Engineering to Boardroom.

We differentiate our interactions between:

**TRAINING**
Focused on building competency, increasing skills, improving knowledge and enhancing behaviors.

**ASSESSMENT**
Technical and non-technical competency testing and assurance.

**CONSULTING**
On- and offshore support to improve safety and operational performance.
Crew Resource Management training

We truly believe that all engaged and properly trained crews can stop the next accident and improve your chances for success. In Maersk Training we have over 30 years of experience in training industry crews by enhancing their ability to cooperate in challenging as well as mundane daily situations/operations.

Originating out of an aviation crash investigation, work undertaken by aviation and NASA in the 1970s and 80s led to Human Factors Training and evolved within other High Reliability industries. The evolution of Human Factors became more refined to target those cognitive, social and interpersonal skills that underpinned safe and efficient teams. These became known as Crew Resource Management and the multitude of Human Factors touch points was reduced to the most significant 6 elements (See below)

The objective of Human Factors is to optimise efficiency and safety, by considering how to leverage the team to improve the integration of people, equipment and processes.

An ignorance of Human Factors & CRM results in suboptimal performance and fails to tackle the largest contributory cause of incidents in High Reliability Organisations.

CRM & HF training at Maersk Training is founded in the precepts that:

• Technical Skills and Non-Technical Skills, in an operational context, are supporting each other and can be equally important.
• There is nothing wrong with the individual person involved in a “Human Error”, but it’s the interaction between the human and the environment designed around the person that causes the error. Blame culture will drown the truth.

Our ability to use the CRM principles depends highly on our Non-Technical team competences.

At Maersk Training we based our CRM training on the “Basic 6”.

THE BASIC SIX – NON-TECHNICAL SKILLS

- Situation Awareness competence
- Leadership competence
- Communication competence
- Performance Shaping Factors competence
- Decision Making competence
- Team Work competence
The purpose of this course is to reduce the risk of accidents at sea. We focus on casualty prevention and human error, but also on increasing operational uptime and daily efficiency on DP units in an offshore environment.

**TARGETGROUP**
The course is aimed at, but not limited to, deck officers from dynamic positioned drilling and offshore units.

**OBJECTIVES**
Upon completion of this course the participant will be able to demonstrate sufficient knowledge of resource management, leadership and teamwork to fulfil the requirements of STCW 2010, Sections A-II/1 and A-II/2.

- Knowledge of shipboard personnel management, including human error, cross cultural awareness, situational awareness, complacency and teamwork.
- Ability to apply task and workload management.
- Knowledge of and ability to apply effective resource management.
- Knowledge of and ability to apply decision making techniques.
- Knowledge of international maritime conventions, recommendations and national legislations.
- Knowledge of Emergency management and Crisis Leadership.
- Ability to observe teammates and provide proper feedback, and use feedback as a performance enhancement tool.

The course is verified by the Danish Maritime Authority (DMA).

**CONTENT**
Through theory classes and practical cases we address how human factors such as individual behavior and interaction between team members affect the safe and efficient operation of a vessel.

In the simulator officers are trained to handle dynamically escalating situations emphasising the need to apply the lessons learned in real life situations. The participants are provided with the tools to improve teamwork, leadership, communication, decision-making and resource management.

The course is conducted as interplay between theoretical presentations, case studies, group discussions and supervised training in a Full Mission Bridge Simulator to backup/illustrate theory and make it easily transferable to daily operations:

- Human factor theory, personal abilities, behaviors and human limitations.
- Human error, complacency, boredom and automation awareness.
- Situational awareness.
- Resource management and decision making.
- Leadership and team work.
- Assertiveness.
- Effective communication.
- Cultural awareness, inherent traits, behavior and cross-cultural communication.
- Planning and prioritisation.
- Risk assessment.
- Stress coping, rest and fatigue.
- Emergency and crisis management.
- Observations and feedback given by participants’ own colleagues are processed.
- Exercises will be conducted on OSV and MODU bridges with DP2 or DP3, and relevant systems like Riser Management System, Ballast Control and Power Management System.

**Key benefits from Bridge Resource Management training**
- Practical training of technical skills combined with human factor elements and valuable feedback and development input for all participants.
- Full technical understanding and practical application of theoretic methods.
- Solid non-technical understanding and practical application of theoretic methods concerning human factors and feedback on personal and team performance in the simulated environment.
STANDARD CRM TRAINING

Engine Room Resource Management

Introduction to Human Factors and Crew Resource Management techniques through technical skills classroom training and high fidelity simulator scenario-based training. Team based problem solving in scenario-based simulator vessel specific cases.

The purpose of this course is to reduce the risk of accidents at sea. We focus on casualty prevention and human error, but also on increasing operational uptime and daily efficiency on DP units in an offshore environment.

TARGETGROUP
The course is aimed at, but not limited to, technical officers from DP drilling and offshore units.

OBJECTIVES
On completion of this course the participant will be able to demonstrate sufficient knowledge of resource management, leadership and teamwork to fulfil the requirements of STCW 2010, Sections A-III/1 and A-III/2.

The course is verified by the Danish Maritime Authority (DMA).

Key benefits from Engine Room Resource Management training

- Full technical understanding and practical application of theoretic methods.
- Solid non-technical understanding and practical application of theoretic methods concerning human factors and feedback on personal and team performance in the simulated environment.

CONTENT

Through theory classes and practical cases we address how human factors such as individual behavior and interaction between team members affect the safe and efficient operation of a vessel.

In the simulator officers are trained to handle dynamically escalating situations emphasizing the need to apply the lessons learned in real life situations. The participants are provided with the tools to improve teamwork, leadership, communication, decision-making and resource management.

The course is conducted as interplay between theoretical presentations, case studies, group discussions and supervised training in a Full Mission Engine Room Simulator to backup/illustrate theory and make it easily transferable to daily operations:

- Human factor theory, personal abilities, behaviors and human limitations
- Human error, complacency, boredom and automation awareness
- Situational awareness
- Resource management and decision making
- Leadership and team work
- Assertiveness
- Effective communication
- Cultural awareness, inherent traits, behavior and cross-cultural communication
- Planning and prioritisation
- Risk assessment
- Stress coping, rest and fatigue
- Emergency and crisis management
- Observations and feedback given by participants' own colleagues are processed
- Exercises will be conducted on a full mission model of a 7th generation DP3 ultra deep water drillship, with advanced Power Management System, propulsion control and automation system.

• Working knowledge of shipboard personnel management, including human error, cross cultural awareness, situational awareness, complacency and teamwork
• Ability to apply task and workload management
• Knowledge of and ability to apply effective resource management
• Knowledge of and ability to apply decision making techniques
• Knowledge of international maritime conventions, recommendations and national legislations
• Knowledge of Emergency management and Crisis Leadership
• Ability to observe teammates and provide proper feedback, and use feedback as a performance enhancement tool

Through theory classes and practical cases we address how human factors such as individual behavior and interaction between team members affect the safe and efficient operation of a vessel.

In the simulator officers are trained to handle dynamically escalating situations emphasizing the need to apply the lessons learned in real life situations. The participants are provided with the tools to improve teamwork, leadership, communication, decision-making and resource management.

The course is conducted as interplay between theoretical presentations, case studies, group discussions and supervised training in a Full Mission Engine Room Simulator to backup/illustrate theory and make it easily transferable to daily operations:
Crew Resource Management Training

Team Based Well Control (Deep Water or Surface version)

In a post Macondo era Maersk Training was heavily involved in designing a team based well control that combined technical well control skills with basic non-technical skills/Human factors. The Team Based Well Control is practical and theoretical training that ensures behavioral responsiveness on team level. We train, provide feedback and train again to enable the Drill Crew to avoid, detect and/or tackle advanced Well Control issues.

TARGETGROUP
Drill Crews (Assistant Drillers, Drillers, Lead Drillers/Tour pushers, Senior Tool pushers, Drilling Supervisors, Drilling Engineers, w/wo Client Rep./Company Man)

OBJECTIVES
The objective for the participants is to resolve normal and abnormal well control situations by applying relevant technical knowledge and skills, while complying with regulations and industry recommended practices. Furthermore to utilise the human resources in the well control team, by applying relevant risk assessment and human factors skills and knowledge. Participants will reassessed and receive feedback on technical and non-technical skills to enhance performance. Through scoring a minimum of 80% correct on team DTS test’s participants must show understanding of:
• Pressure behaviour in well control situation – gauge exercises
• Well Barrier philosophy and assurance

CONTENT
The Team Based Deepwater Well Control dynamically reflects the challenges and trends of well control incidents and responds to current demands in order for the content to always remain topical relevant.

Technical theory
• Pre-study expectations
• Read through provided Macondo report

Theoretical technical drilling subjects:
• Well barriers philosophy
• Deep Water Challenges
• ECD & Well bore breathing
• Bull heading
• Gas handler (Rig Specific)

CRM – The Basic Six – non-technical skills
• Communication
  – Perception
  – Cross cultural awareness
• Assertiveness
• Decision making
  – Decision models
  – Individual decisions
• Situational awareness
  – Critical decision points
• Leadership
  – Planning and preparation
  – Supporting and directing the team
  – Structure team effort

STANDARD CRM TRAINING
Team Based Well Control (Deep Water or Surface version)

Introduction to Human Factors and Crew Resource Management techniques through technical Well Control classroom training and high fidelity simulator scenario-based training. Team based problem solving in scenario based Simulator Well Control Cases.

• Drill crew will increase ownership of drill program
• Active learning increases knowledge/process retention (muscle memory)
• Proven to increase early detection of kicks to mitigate risks offshore.

Key benefits from Team Based Well Control training

• Consistent completion of wells ahead of AFE targets
• Develop skill sets and behaviors that can be applied to any scenario
• Critical events simulated so crew can gain experience in safe environment
• Training debriefs for peer and self-evaluation augment skills development
• Simulations shown to decrease necessary training time
• Team Work
  – Understanding team roles
  – Support & conflict solving
  – Utilisation of resources
• Performance shaping factors
  – Complacency
  – Stress
  – Fatigue
• Case study:
  • Technical and human factor study of Macondo well control incident
    – Barrier assurance
    – Risk management
    – Take aways
    – Complacency
    – Mis-communication/mis-perception
    – Situational awareness
• Scenario Based Well Control Training in full mission simulator:
  • One instructor lead introduction to the simulator, tripping, SCR/CLF, and Hang Off procedure.
  • Four well control scenarios focusing on technical skills and human factors.
STANDARD CRM TRAINING

Enhanced Well Control

Introduction to Human Factors and Crew Resource Management techniques through technical Well Control classroom training and high fidelity simulator scenario-based training. Problem solving in scenario based Simulator Well Control Cases.

The Enhanced Well Control Course combines traditional Well Control with Basic Human Factors. Human Factors are introduced and build into all simulator exercises. The technical elements are depending on Human Factor skills.

OBJECTIVES
To improve the Well Control knowledge for senior personnel to a new higher level above and beyond the current IWCF Level 4 Well Control training and assessment with also Well Operations CRM.

Furthermore to include IWCF Level 4 Equipment and Principles & procedures tests and simulator assessment allowing passing candidates to obtain the IWCF Level 4 certificate.

TARGETGROUP
Participants must have passed the previous two IWCF Level 4 WC courses with a minimum 80% score across all three categories – Equipment – Principles and Procedures and Simulator assessment.

Completion within three months prior to attendance: CPD(Continuous Professional Development) according to IWCF guidelines.

CONTENT

IWCF Level 4 examinations
- Principles & Procedures Test
- Equipment Test
- Well Control simulator assessment

Principles and procedures
- Well control methods
- Horizontal well control
- Stripping operations
- Bullheading Method
- Barrier management
- Case study 1
- Table top P&A exercise

CRM – The Basic Six – non-technical skills
- Situation Awareness
- Decision making
- Communication
- Team work
- Leadership
- Performance shaping factors
- And more...

Simulator use
- IWCF Level 4 assessment
- Well control team scenarios
- Debriefing and feedback
- And more...

Key benefits from Enhanced Well Control training

- Enhanced Well Control adds the Human Factor elements to the technical training and that multiplies the Drill Crews team ability to make right timely decision and execute coordinated measures.
**BESPOKE CRM TRAINING**

**Immersive Simulated Environment (ISE) concluded with CHAOS™**

Innovative, bespoke performance optimisation training for offshore drilling shown to reduce operational costs – it’s the next generation offshore training.

First full unit Training environment. We train all functions and cooperation between all parts of the unit (RIG) including technical simulators and human factors as well as crisis management training.

This program is the culmination of years of observing isolated courses that brick by brick contributed to improved efficiency and safer practices. With ISE, you get to see the whole wall. Gathered together under one roof you have the decision-making personnel from shore base, bridge, engine room, crane and the drilling teams all interacting as they would on a rig facility. They may have been working together for years, but this could genuinely be the first time that they get an opportunity to cross departments and share experiences and discuss issues.

On board the rig, once the toolbox talk ends the crew splits back into default departmental mode. During ISE, crews work their way through a common scenario; at lunch and dinner breaks, at constant feedback sessions and even around the coffee machine, they get the chance to share. It is this sharing that is a critical component to gaining a greater understanding of the consequences of everyone’s role. Within days gone forever is the ‘them versus us’ mentality which hampers smooth running operations. As with all courses, the aim is to gain the maximum learning experience. The Immersive Simulator Environment is refined and enhanced by customer input and guidance. We have the workable formula, but we recognise from day one that different targets need different approaches. ISE is a bespoke course tailored to the customer’s needs and desires.

**OBJECTIVES**

- Simulations create active learning that increases knowledge/process retention
- Participants become actively aware of consequences of decisions/actions
- Simulations develop personnel who have increased situation awareness and thus are able to respond to events faster with enhanced decision making abilities
- Simulations increase productivity by increasing muscle memory and decrease incidents by fostering a deeper understanding of procedures, environment, and non-human factors
- Simulations are shown to decrease training time, as experienced in industries such as aerospace, healthcare and mining
- Increase trust and teamwork between:
  - Operator and contractor
  - The rig and on-shore team
  - Bridge, engine room, drill floor and crane
- Mitigate risks for the drilling operation by providing hands-on experience working collaboratively with integrated crew in a safe simulated environment
- Stronger perception and understanding of respective team and individual colleagues’ responsibilities through team-based problem solving
- All key personnel will gain familiarity with individual and team challenges that have potential to occur offshore
- Heightened confidence in colleagues’ capabilities, knowledge, and experience for solving complex problems in offshore environment
- Increased personal accountability and understanding of impact on overall team performance
- Building a shared understanding of operational decision making in critical situations
- Safe environment for testing technical and non-technical skills during simulated critical events

**Key benefits from ISE with CHAOS™ training**

- Mitigate risks and increase safety performance
- Substantial cost savings
- Simulations proven to decrease training time across all industries
- Immersive simulations improve learning retention and increase muscle memory
- Strong, team-based performance culture increases productivity
- Training under pressure improves crews’ decision making, communication skills and situational awareness
- Participants become actively aware of consequences of their decisions, mistakes and successes
- Shared understanding of operational decision making in critical situations
- Confidence to handle critical situations
- Establishes trust between operator and contractor personnel
- Mutual recognition of competencies and increased teamwork

**CONTENT**

There is no escaping the word immersive in this week-long course. It is intense from day one in the classroom sessions which gradually give way to simulator scenarios. The classrooms are used for laying down the principles, discussing concepts and for reviewing progress. With each simulator session recorded on multi-cameras, there is no escaping valid criticism or genuine praise.

The time spent in the simulators grows each day. The simulators are important tools in the programme, but it is not just how they are used its who uses them that makes them vital. You can buy a group of people instruments, but they are not a band until they have knowledge, guidance and music sheets. Industry experienced instructors share and transfer the knowledge that helps make the programme such a valuable experience.

For ‘the ISE band’ the big performance comes on the fourth day. It is an all-day simulation exercise with interlinked scenarios involving everyone. The instructors create a schedule which starts like most any day on a rig. What follows is determined by the actions of the crew who are nudged into a Chaos situation. Chaos - Combined Human And Operational Skills – is what the participants might experience in a lifetime, but launched at them in a few hours. The final day is for reflection, packing and departing with a refreshed look on your working environment.