

# Drift-off incident - Maersk offshore vessel @ Gryphon A



## Incident Material

- 1: Incident report from Maersk Oil
  - 2: Investigation report from vessel
  - 3: Bridge orders from vessel
  - 4: Vessel's log book extract
  - 5: Survey picture Maersk Oil
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- Weather Conditions reported:
  - Maersk Logger, SE force 10, Sea 5-6 metres
  - Gryphon A, SE 60knots, Sea 8-9 metres



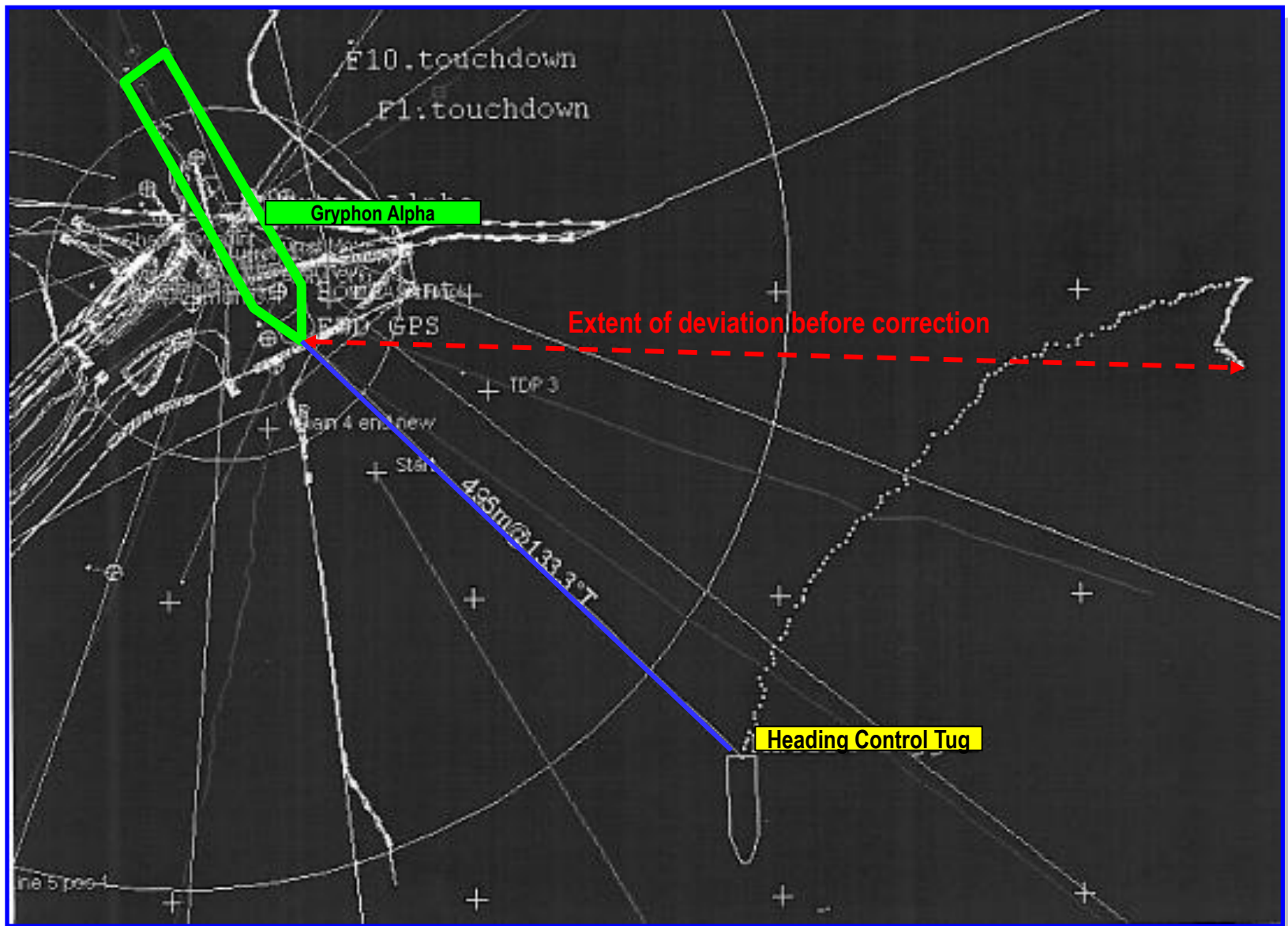
# Incident description

- **Incident Overview**

- Following an excursion incident during severe weather, where the Maersk Oil owned Floating Production Storage and Off-take (FPSO) installation lost heading and parted 4 of 10 anchor chains, it became necessary to provide a heading control/positioning assist tug at the bow of the installation, on a short term basis, until such times as the integrity of the mooring system could be re-instated and confirmed.
- Initially following the Gryphon excursion incident this role was fulfilled by another Maersk vessel, which is a sister vessel to the subject of this report.
- The main characteristics of this Maersk vessel (and sisters) are, as follows;

- During the night of 23<sup>rd</sup> February the weather increased to 5.5m significant wave height with maximum waves of around 9 meters from a general South-easterly direction with wind gusting to 65 knots were experienced.
- It was reported by Gryphon that the offshore vessel was seen to deviate from his position upwind of the FPSO and move to a position approximately 500m to the East of the installation before returning to the correct position.
- This occurred between 2030-2040hrs on 23<sup>rd</sup> February.
- It was ascertained from the vessel Master that this excursion was the result of very large seas affecting the vessels heading control whilst in manual operation.
- He stated that 2-3 very large seas struck the vessel in succession which deviated the vessel heading such that the wind 'took hold' of the bow and the vessel moved bodily to the East.

- The Second Officer was on watch as the sole watch-keeping Officer on the bridge at the time. He was maneuvering the vessel in manual mode through the use of individual controls for main engines, rudders and thrusters.
- The tow-wire was at 860 meters length and tension of the tow was at 55 tonnes at the time of the incident. The tow-wire was held in position aft through the towing pins on the centre-line of the offshore vessel.
- The Master was called and quickly attended the Bridge where he took command of the vessel, paid out some tow wire and corrected the vessels heading before gradually bringing the ship back to optimum location.



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År - Year 2011	Styret kurs Magnetskompass Gyroskop	Deviation Gyrofej	Misvisning	Styret kurs revisende	Beholdne kurs revisende	Log- visning	Dist.	Vind, vind- styrke & se	Vejr, baro- & termometer	Maskinen Engine
Måned - Month FEB	Compass Course Magnetic Compass Gyro compass	Deviation Gyro error	Variation	True Heading	Course made good	Log reading	Dist.	Wind, Wind Force & Sea	Weather, Barometer & Thermo- meter	Kl. Hours
WED								SE 8		
Dag - Day 23.								SE 8		
Dato - Date								SE 8/9	4-5m	
								SE 8/9	10-13	
								SE	1003*	
								6/9		
								8	+3°C	
								SE 8-10	+3°C	
								SE 10		
								SE 10		
								SE 10	5-6m	
								SE 10	1009	3°
								SE		
								4/10	1009	
								9	+3°C	
								10/11	1008	
								7/9m	+3°C	
								9/10	1008	
								7/9m	+3°C	

Anmærkninger og rettelser - Notes and Corrections

\* 1013

# Master's orders:



## Bridge Orders

Maersk Supply Service ID:267 - Revision date:11/11/2010 - Revision no.:03 - Retention time:6 months

Vessel: Maersk Logger

Master: Preben Hall

Date: 24/02/11

### HOLDING GRYPHON ALPHA

2 main engines are on and 2 bowthrusters. If more thrusters are needed - start them  
Keep about 700 m workwire out unless instructed different from Gryphon A. Freshen the wire min. every hour.  
The catenary is about 55 m deep with 40 t and 800 m wire total out. NEVER end up with more than max 60 m depth of catenary - If power is to be reduced you must reduce wire length out. Inform me if you need to reduce power.

Keep between 40 t tension in the tow wire of Gryphon A unless you receive different instructions from the Gryphon Control room.  
Maintain heading control of the rig in DP MODE and follow TowMasters guidance.

If you cannot maintain the position in case the wind or current picks up (and all thrusters are running) - call me and I will come to the bridge.

If you unintended loose the control of the vessel due to wind, sea or current - CALL ME.

Case anything breaks in the tow system - immediately stop the vessel and start the recovery of the wire without sliding the wire on the bottom, call me immediately.

IF POWER SETTING IS CHANGED UPWARDS AND WE HAVE TENSION ABOVE 100 TONNES - INFORM ME.

Keep sharp look out during the night for passing vessels and attending PSV's - and maintain the watchman on the bridge as well (4-8 watch ok for Felix and Peter). Trygvi must be called on duty from 04 if assistance is needed.

If any doubt or you like a second opinion - CALL ME AT ANYTIME.

Have a nice watch.

Preben

Master's signature

Acknowledger's (1) signature

Acknowledger's (2) signature

Acknowledger's (3) signature



## Bridge Orders

Maersk Supply Service ID:267 - Revision date:11/11/2010 - Revision no.:03 - Retention time:6 months

Vessel: Maersk Logger

Master: Preben Hall

Date: 24/02/11

### HOLDING GRYPHON ALPHA

4 main engines are on and 2 bowthrusters.  
Keep about 900 m workwire out unless instructed different from Gryphon A. Freshen the wire min. every hour.  
The catenary is about 55 m deep with 50 t and 800 m wire. NEVER end up with more than max 60 m depth of catenary - If power is to be reduced you must reduce wire length out. Inform me if you need to reduce power.

Keep between 40-50 t tension in the tow wire of Gryphon A unless you receive different instructions from the Gryphon Control room.  
Maintain heading control of the rig as per TowMasters instructions.

If you cannot maintain the position in case the wind or current picks up (and all thrusters are running) - call me and I will come to the bridge.

If you unintended loose the control of the vessel due to wind, sea or current - CALL ME.

If one propeller needs to be set to zero pitch - compensate with the other side.

Case anything breaks in the tow system - immediately reduce power and start the recovery of the wire without sliding the wire on the bottom, maintain position and call me immediately.

IF POWER SETTING IS CHANGED UPWARDS AND WE HAVE TENSION ABOVE 100 TONNES - INFORM ME.

Keep sharp look out during the night for passing vessels and attending PSV's - and maintain the watchman on the bridge as well (4-8 watch ok for Felix and Peter). Trygvi must be on duty also from 4-8 assisting for the manoeuvring in the harsh conditions.

If any doubt or you like a second opinion - CALL ME - AND I MEAN IT.

Have a nice watch.

Preben

Acknowledger's (1) signature

Acknowledger's (2) signature

Acknowledger's (3) signature



## Bridge Orders

Maersk Supply Service ID:267 - Revision date:11/11/2010 - Revision no.:03 - Retention time:6 months

Vessel: Maersk Logger

Master: Preben Hall

Date: 22/02/11

### HOLDING GRYPHON ALPHA

Keep about 800 m workwire out unless instructed different from Gryphon A. Freshen the wire min. every 2 hours.  
The catenary is about 55 m deep with 50 t and 800 m wire. NEVER end up with more than max 60 m depth of catenary - If power is to be reduced you must reduce wire length out. Inform me if you need to reduce to minimum power (20 tonnes).

Keep between 40-50 t tension in the tow wire of Gryphon A unless you receive different instructions from the Gryphon Control room.  
Maintain heading control of the rig as per TowMasters instructions.

If you cannot maintain the position in case the wind or current picks up (and all thrusters are running) - call me and I will come to the bridge.

If you unintended loose the control of the vessel due to wind or tide - CALL ME.

If one propeller needs to be set to zero pitch - compensate with the other side.

Case anything breaks in the tow system - immediately reduce power and start the recovery of the wire without sliding the wire on the bottom, maintain position and call me immediately.

IF POWER SETTING IS CHANGED UPWARDS AND WE HAVE TENSION ABOVE 100 TONNES - INFORM ME.

Keep sharp look out during the night for passing vessels and attending PSV's - and maintain the watchman on the bridge as well (4-8 watch ok for Felix and Peter).

If any doubt or you like a second opinion - CALL ME - AND I MEAN IT.

Have a nice watch.

Preben

Master's signature

Acknowledger's (1) signature

Acknowledger's (2) signature

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## Vessel's statement and initial findings:

- The vessel was holding Gryphon A (GA) steady on heading 150 degrees by means of 950 m tow wire out, 52% pitch on the main engines and variable use of thrusters, when suddenly 2-3 freak waves hit the starboard bow area. Heading control of the vessel was rapidly lost in the estimated 60 knot winds and the vessel drifted to a heading of about 100 degrees. Control of the vessel was hereafter restated by the Master and the vessel was repositioned to its origin position.
- **Initial Findings**
- **People**
- - **Immediate Cause**
- 1 - Lost heading control of the vessel
- - **Barrier missing/defeated or bypassed**
- 2 - Standing orders not timely followed
- - **Underlying Cause(s)**
- 3 - Inadequate reaction to changing circumstances
- 4 - Lack of experience / training
- **Environment**
- - **Immediate Cause**
- 5 - Exposure to extreme / unexpected weather
- - **Barrier missing/defeated or bypassed**
- 6 - No procedure in place for restrictions of operation / Masters discretion
- - **Underlying Cause(s)**
- 7 - Operation in Heavy weather conditions.
- 8 - Inadequate reaction to changing circumstances
- 9 - Lack of experience / training

## Corrective action taken by the vessel:

- Investigation initiated in order to evaluate corrective action and root cause removal.
- Re-evaluation of the bridge team composition.
- Evaluation on the use of DP system and the main winch tension control.
- Evaluation of additional training of persons involved in the incident.

## Maersk Oil recommendations:

- That IMO DP Class 2 vessels are chartered for this workscope equipped with an auto tension towing facility for their winches.
- That chartered tugs for this work are fitted with a Fugro Telemetry-Linked Navigational Pack system prior to arrival on location.
- Scope of work as 'Live Anchor' and method statement should form part of the pre-port departure vessel briefing performed by Maersk Oil's Marine Technical Contractor.
- That vessel Masters are instructed to ensure watch-keeping arrangements allow for two watch-keeping officers on watch at any one time comprising as a minimum one senior and one junior officer per watch.
- That vessel Masters are instructed to give early warning of any developing situation that may affect its ability to fully carry out this service such that arrangements can be made to replace the vessel accordingly.
- Regular briefings are held offshore between tow vessel and Gryphon Barge-Master or his delegates.

# Conclusion / lessons learned:

## ***Immediate Cause(s)***

- Lost heading control of the vessel due to the affect of adverse wind and weather conditions.
- O/O/W did not take appropriate action when the vessel started to drift off its intended position.
- Unable to react to the changed circumstances.
- Not calling the Master in due time in order to prevent the situation from escalating.
- Vessel's maneuverability and the affect of adverse wind and weather conditions not fully understood by the O/O/W.
- Watch instructions not followed.

## ***Underlying Cause(s)***

- Operation not properly planned in advance.
- Proper risk assessment / SJA not conducted.
- Bridge team composition not efficient for the task.
- O/O/W's insufficient knowledge of the maneuverability of the vessel in order to take full control of the situation.
- Master's evaluation of the junior officer's capability to take the sole watch responsibility.
- No full understanding of the winch tension set-up and interface with the DP system.
- Watch instruction did not include "action triggers", e.g. weather criteria, power criteria

## Corrective action (MSS):

- Share the incident and findings with the fleet.
- Remind Masters to conduct risk assessment (Job Package System) prior to any operation with offshore installations.
- Review company procedures regarding Master's watch instructions to include "action triggers".
- Review company procedures regarding bridge composition to ensure watch-keeping arrangements allow for two watch-keeping officers being on watch at any time comprising, as a minimum, one senior and one junior officer per watch.