BSAFE

INCIDENT CASE STUDY No.2

BRITANNIA COMMENTARY | DECEMBER 2020

AS PART OF THE CASE STUDY MATERIAL, THE FOLLOWING COMMENTARY PROVIDES FURTHER ANALYSIS OF SOME OF THE KEY ISSUES TO SUPPORT REFLECTIVE LEARNING.

The first three pages of this commentary discuss some of the contributory factors and lessons learned in more detail with particular reference to best practices. The final page illustrates graphically some of the barrier control measures that could have potentially mitigated against the risks associated with the hazards using Britannia's interpretation of the Hierarchy of Barrier Controls triangle as a framework.

FATAL FALL FROM A LADDER

THIS FATALITY APPEARS TO BE THE RESULT OF TWO CREW MEMBERS WHO, IN THEIR EAGERNESS TO PREPARE THE SHIP FOR A FORTHCOMING USCG INSPECTION, FAILED TO FOLLOW THE REQUIREMENTS OF THEIR COMPANY'S SAFETY MANAGEMENT SYSTEM (SMS).

Had the applicable procedures been adhered to, the associated hazards could have been correctly identified and appropriate risk controls applied to prevent the tragic death of the AB.

The investigation and resulting case study identified a number of factors and lessons learned, as discussed below.

WORK PERMIT AND RISK ASSESSMENT

The company's working aloft procedures in the SMS required a risk assessment and work permit to be prepared for work conducted more than two metres above deck. With the lifeboat forward hook being located 4.8 metres above deck, any work on this would have required a risk assessment and work permit to be completed. Had this been done prior to the work starting, the process should have captured and recorded the hazards associated with the activity, as well as the precautions to be taken in order to sufficiently mitigate them.

SMS EFFECTIVENESS

The AIBN report concluded that the incident happened despite the company's SMS having clear procedures in place for working aloft and the precautions to be taken. This highlights that procedures documenting safe work processes are not enough alone to prevent accidents; it is also necessary to ascertain why trained crew members may choose to deviate from safe working practice. Following the incident, the vessel's management company instigated a 12-month behaviour-based safety campaign on all vessels in the fleet. This focussed on an increased practical understanding of safety among the crew, with the focus on working position, ergonomics and use of tools.

Such programmes can be a useful tool to better understand the safety behaviour of the crew, and identify areas or procedures of a SMS which may not be fully implemented or that require modification in order to effectively enhance safety. Furthermore, the use of a robust audit schedule can help verify that the SMS is sufficiently well implemented and identify any areas that may require attention.

COMPLACENCY

The AIBN assumed in their report that both the Bosun and the AB would have been aware that the lubrication of the forward hook at height without conducting a risk assessment and having a work permit in place was not compliant with the company's SMS.

However, the AIBN report did not establish what the exact reasons were as to why the AB chose to conduct the work on the forward lifeboat hook without following the company's SMS. Furthermore, the bosun allowed the task to continue despite having been told by the chief officer that no work was to be carried out at height with the vessel rolling moderately in the swell.

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COMPLACENCY (continued)

As the maintenance task on the turnbuckle in the same general area did not involve working at height, it did not require a risk assessment or a work permit to be conducted. It is possible that the successful completion of this task led the AB to assume that it would be acceptable to also conduct the lubrication of the lifeboat forward hook without a work permit or risk assessment.

However, It is also possible that the requirement to complete the risk assessment and permit was ignored given the urgency of completing the preparatory work before the ship's scheduled arrival at Los Angeles the following day, in particular in light of the forthcoming USCG inspection.

Complacency may lead a person to take shortcuts from established safe work procedures to save time and effort. However, this can also lead to undesirable and, in this case, tragic consequences. Similarly, any assumptions made about the safety of the work environment and the required control measures can also lead to unexpected hazard exposure and injury.

Complacency can be avoided by always take a minute to think about the job at hand and consider what can go wrong and how, and what steps can be taken to minimise the risks.

UNSAFE PRACTICE

The portable ladder being used for the task was not correctly placed nor was it in a suitable condition. The Code of Safe Working Practices issued by the UK's Maritime and Coastguard Agency[1] provides some useful guidance on the safe use of portable ladders, noting that:

- A portable ladder should only be used where no safer means of access is reasonably practicable.
- Portable ladders should be pitched at 75° from the horizontal, properly secured against slipping or shifting sideways and be so placed as to afford a clearance of at least 150 mm behind the rungs. Where practicable, the ladder should extend to at least 1 metre above any upper landing place unless there are other suitable handholds.

In relation to the first point, it was evident from the photos in the Case Study summary that the use of the ladder did not represent a safe means to access the hook. As part of the risk assessment process, and as outlined in the Hierarchy of Barrier Controls diagram on page 4, consideration should always be given to trying to eliminate and substitute a hazardous situation by providing a safe working arrangement. In this instance, consideration could have been given to other possible means of accessing and lubricating the hook without exposing the crew to serious risks.

The guidance provided under the second point highlights the clear need to properly secure a portable ladder. This can include: adequately and firmly securing the upper section of the ladder by lashing it to a fixed object; ensuring the ladder feet are correctly in contact with the surface below, which is flat and stable; and by further providing a means of preventing the feet from slipping on the surface by applying an appropriate anti-slip device or arrangement.

In this case, the ladder was evidently in poor condition with the anti-slip material fitted on each of the ladder's legs significantly worn and, therefore, not effective. This would have contributed to its feet not being in firm contact with the deck and therefore making the ladder unstable. Had the AB and Bosun applied their professional knowledge and expertise to verify that the ladder was both in a suitable condition and safely secured before the work started, this could have helped prevent the incident.

Furthermore, it is important to remember that any safety equipment identified as being unsafe should be promptly removed and marked accordingly to prevent its use until it can be fixed or disposed of.

[1] *United Kingdom's Maritime and Coastguard Agency (2020), Code of Safe Working Practices for Merchant Seafarers 2015, amended 2020. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938726/Code_of_Safe_Working_Practices_for_Merchant_Seafarers_Amendment_5_Oct_2020_v.2.pdf*

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PPE

The AB climbed the ladder to access the forward hook of the lifeboat without wearing suitable PPE for working aloft. If a work permit and risk assessment had been prepared, this would have identified the correct PPE to be worn.

The use of a safety helmet with a chin strap may have afforded the AB some protection when he fell from the ladder which could have reduced the severity of his injuries.

Even though a portable ladder is used for a specific work task aloft, the possibility of mounting a fall arrest system together with a suitable safety harness should always be investigated. These should help prevent the crew member from falling on to the deck.

As indicated in the Hierarchy of Barrier Controls diagram on the following page, the use of PPE should be generally regarded as the last resort to protect a crew member against hazards while conducting work. However, it is imperative that the PPE required is identified prior to the work starting and that it is inspected to ensure it is in a good condition and correctly applied by the crew member(s) involved.

STOP WORK AUTHORITY

If the bosun had intervened and stopped the AB starting the work instead of assisting him by attempting to steady the ladder, then the incident would have been prevented. A bosun, with his experience and seniority, should apply his critical judgement to the safety of the work environment and the activities of the personnel he is supervising, and use his authority to stop work at any time if he observes a condition or activity he perceives as unsafe. This can be supported by a Stop Work Authority (SWA) programme providing crew members with the responsibility and obligation to stop work in case of an apparent unsafe condition or behaviour. A successful SWA programme should enable the crew to use this authority without retribution and contribute to an effective onboard safety culture.

See next page for Hierarchy of Barrier Controls diagram

For more information on this incident, email: lossprevention@tindallriley.com

THIS CASE STUDY IS DRAWN FROM THE INVESTIGATION REPORT 04/2017 PUBLISHED BY THE NORWEGIAN SAFETY INVESTIGATION AUTHORITY (FORMERLY KNOWN AS THE ACCIDENT INVESTIGATION BOARD NORWAY – AIBN) AT: https://www.aibn.no/Marine/Published-reports/2017-04-eng

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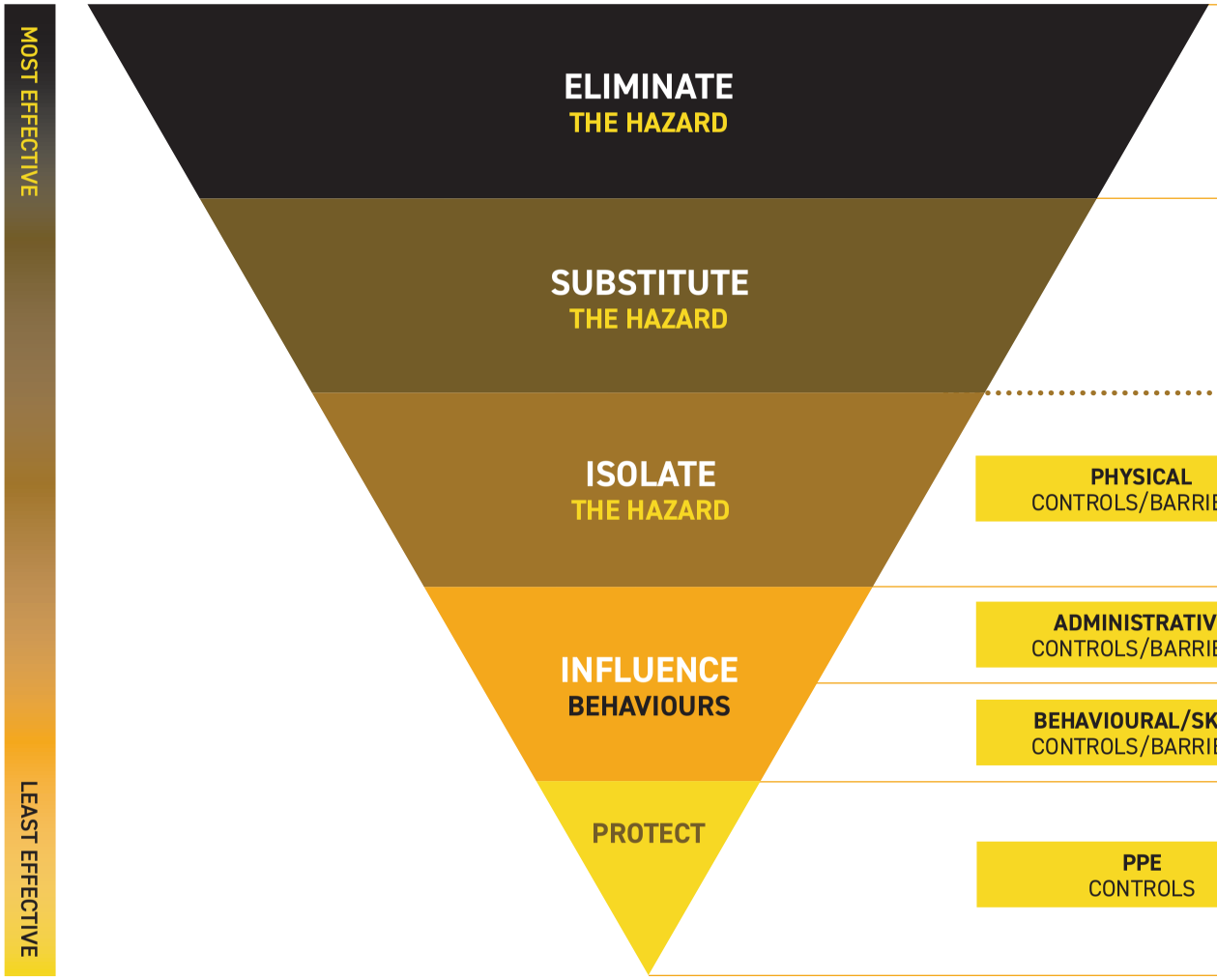
FATAL FALL FROM A LADDER

HIERARCHY OF BARRIER CONTROLS



PHYSICAL CONTROLS/BARRIERS

ADMINISTRATIVE CONTROLS/BARRIERS

BEHAVIOURAL/SKILL CONTROLS/BARRIERS

PPE CONTROLS

EXAMPLES OF POSSIBLE RISK MITIGATION CONTROL MEASURES RELATED TO THE CASE STUDY

INVESTIGATE with lifeboat manufacturer/service technician whether system/arrangement can be modified/designed to enable hook to be lubricated without working aloft?

ESTABLISH different platform to safely access the forward lifeboat hook e.g. permanent platform, scaffolding

ENSURE platform to access the forward lifeboat hook provides adequate protection against falling, e.g. guardrails

EFFECTIVE implementation of SMS
CORRECT USE of work permit and risk assessment when working aloft

MEANS OF AVOIDING complacency
IMPLEMENTATION of a Stop Work system
QUALITY CONTROL of applied equipment

CORRECT USE of safety harness, fall arrest and safety helmet with chin strap when working aloft

The suggested barriers/controls above are provided to help generate reflective discussions, and should not be considered as conclusive/definitive or comprehensive for the provided case study. The risk and control measures relating to any similar scenario or activity must always be appropriately assessed based on the specific onboard arrangement and circumstances.