



NAVAL SAFETY COMMAND SAFETY AWARENESS DISPATCH

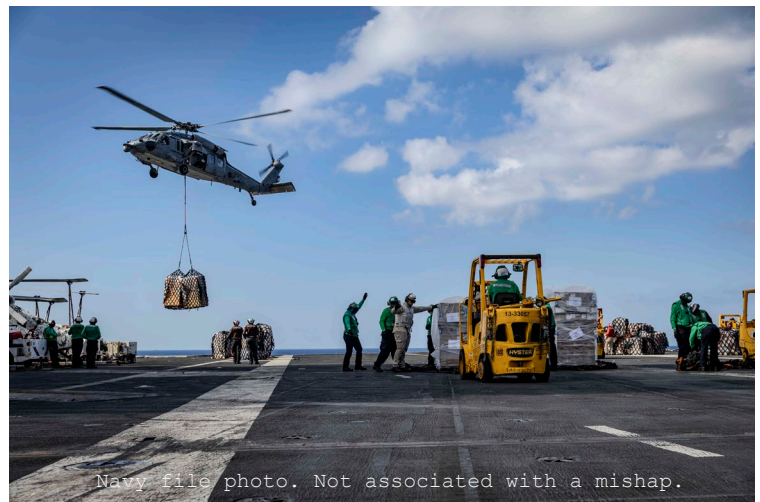


SA 25-30

Vertical Replenishment at Sea

A Vertical Replenishment (VERTREP) at sea is a demanding and complex naval operation. With the introduction of multiple factors to include helicopter maneuvers, heavy load transfers and constant ship movement, a VERTREP can quickly devolve into a hazardous situation if proper risk management is not consistently applied. The following narratives examine specific instances where important factors were missing or overlooked and contributed to a breakdown in operational safety resulting in mission failure.

- **Practice Makes Perfect.** In any operation involving high-risk scenarios, there's always room for error. In this incident, more than one factor led to a situation that could have been prevented, but a series of missteps led to a costly error. A VERTREP involving a high-risk cargo transfer was underway when an ordnance container being lifted snagged an adjoining container and lifted it 14 feet vertically before dropping it back to the deck. The dropped ordnance container was deemed "non-issuable", resulting in loss of mission time and a \$3.5 million loss. Following the mishap, an inspection team found a series of compounding factors that led to inadequate risk control. The factors that led to this MISHAP included: inadequate VERTREP policy, manning challenges that led to degraded crew proficiency and integration, insufficient coordination between the ship's crew and air detachment, and adverse weather conditions. — *This mishap was completely avoidable had risks been identified early and mitigated and communicated appropriately. The investigation report pointed out the ship's crew did not have time to rehearse and operate as a cohesive team prior to the VERTREP mission. Had this been fully understood and communicated effectively during the VERTREP mission planning, a mitigation strategy may have included additional training and walk through(s) that would have highlighted potential snagging issues and clarified the need for more optimal container spacing. To ensure mission success and avoid similar costly mistakes, continuously review and update operating policies, identify manning shortfalls or crew integration issues early and refine weather operational protocols. These systemic improvements will ultimately support the safety and efficiency of future operations.*



Navy file photo. Not associated with a mishap.

- **The Best Laid Plans.** During a replenishment-at-sea (RAS) between an aircraft carrier (CVN) and a supply ship, a mishap occurred due to a breakdown in communication and planning. The RAS included a VERTREP, with pallets being transferred to the CVN and retrograde intended for the supply ship staged in another area. The retrograde was staged in such a way as to decrease the potential for pallets to be blown overboard from anticipated helicopter flight patterns. However, the helicopter diverged from the anticipated flight pattern to avoid overflying personnel unloading pallets. This shift in flight pattern caused the retrograde pallets to be exposed to the rotor wash causing one to be blown overboard. The loss of a retrograde pallet and its load impacted the mission with a monetary loss of over \$618,000. — *While this mishap occurred without injuries, it did highlight the need for proactive risk assessment and clearer communication. The loss of an expensive retrograde pallet could have been avoided by anticipating potential flight deviations and working to mitigate risk. Likewise, communication is often a simple solution to a larger problem and fosters mission success. Future RAS operations for this team will include coordinated attendance of the VERTREP crew at the RAS brief to ensure alignment of ship/air team expectations.*

Vertical Replenishment at Sea

- **It's Always a Trip.** While engaged in VERTREP operations, a Sailor hooked up a cargo load beneath a hovering helicopter. The wind produced by the helicopter's rotor wash caused the cargo attachment pole from another staged load to be blown into the Sailor's predetermined exit path. While in motion to get clear as the lift commenced, he tripped on the pole and sprained his ankle. — *By failing to apply a real-time risk assessment and adjust action to the current situation, the Sailor was injured. While the injury was not severe, this example highlights the need for heightened situational awareness, especially in hazardous, fast-paced environments like VERTREP operations. As an operation progresses, the situation may change and so must your perception of reality. In this case, the Sailor had a predetermined plan to get clear of the load after hook up but didn't factor in the change to his exit path. Be alert for changing conditions during the task and modify your actions accordingly. Continuously evaluate potential hazards as operations evolve to maintain mission success.*
- **That's a Wrap.** What often begins on a smaller scale, such as missed communications, overconfidence or complacency, can compound and quickly lead to significant consequences if not corrected. During a recent VERTREP operation, this issue became apparent. An ammunition pallet was properly rigged and hooked up to the helicopter for transport. As the helicopter began to lift the load, it was inadvertently dragged across the flight deck, striking the coaming. The impact compromised the banding around the pallet, allowing part of the load to break free and fall overboard. Personnel quickly gathered the remaining ammunition and repalletized it, continuing with the operation. Less than five minutes later, the same sequence of events occurred, leading to further loss of ammunition in the same manner. Consequently, the helicopter landed on the deck, and a flight crew swap was initiated before the VERTREP continued. While no injuries occurred, the cost of the lost ammunition was over \$100,000. — *The repetitive and routine nature of the VERTREP operation reduced hazard awareness and led to a lapse in procedural vigilance. The helicopter crew's failure to monitor tower cues or obtain positive visual confirmation from the signalman diminished their situational awareness and led to improper aircraft positioning, early tension on the load and unintended pallet movement. The combination of the pilot's overconfidence and the second pilot's limited experience in the airframe fostered complacency and reduced hazard recognition during the lift. The incident underscores the need for a thorough risk assessment, reinforced communication and stringent procedural discipline to mitigate risks in preventable mishaps.*

Key Takeaways

Applying proper risk management principles is critical for preventing future incidents during complex at-sea transfer operations. By implementing these principles, we can effectively mitigate risks and prevent costly and potentially fatal mistakes.

1. **Identify risks early.** The brief before the event is a time to get all the players on the same page, identify risks to the plan and identify how to mitigate those risks.
2. **Situational awareness is key.** Maintaining situational awareness and being alert to the changing environment is critical in preventing mishaps in an inherently dangerous evolution such as VERTREP operations.
3. **Prioritize clear and consistent communication.** During high-risk and dangerous operations, thorough and continuous communication among personnel involved in mission planning and the execution of operations is critical. As in one of our scenarios, the VERTREP crew and RAS crew now brief together to ensure alignment of expectations for ship/air teams.
4. **Don't let the repetitive nature or familiarity of an evolution bite you.** Always maintain procedural discipline – during the pre-brief and during the event. Making assumptions and taking short-cuts instead of proper planning and procedural compliance can easily end up in a mishap.