

2016.03 - Helicopter Operations

PURPOSE

This Safety Notice highlights some safety issues that were identified during a review of helicopter operations onboard one of the offshore installations operating in the Canada - Newfoundland and Labrador Offshore Area, which may impact helicopter operations onboard other drilling and production installations operating in our jurisdiction as well as other jurisdictions.

BACKGROUND

During a review of helicopter operations on board one of the offshore installations operating in the Canada - Newfoundland and Labrador Offshore Area the following deficiencies were identified:

- Procedures in place for helicopter landings provided room for subjective interpretation of Transport Canada's minimum requirements of minimum 50 foot ceilings above the landing area and 1/2 nm visibility.
- Light to no wind conditions, wind direction and the location and status of all exhaust stacks in the vicinity of a helideck were not being considered as part of the green deck notification to pilots prior to landing on the helicopter deck. In addition, the Civil Aviation Authority (CAA) Paper 2008/03 recommends in situations where it is difficult or impractical to reduce the potential interaction between the helicopter and the exhaust plumes to a sufficiently low level, consideration should be given to installing an exhaust plume visualization system to highlight the hazard to pilots.
- Risk assessments conducted for helicopter operations did not include an assessment of all potential ignition sources from a helicopter. Ignition sources from a helicopter include static discharge from turning rotors, electrical equipment onboard the helicopter, internal temperature of the engine and the exhaust wake temperature.
- Classification of hazardous areas and purpose of the emergency shutdown system in isolating all sources of ignition were not well understood. In accordance with American Petroleum Institute API RP 500/505, the classification of hazardous areas should be performed to ensure that electrical equipment installed in an area is rated for operation in that area under normal operating conditions, which means during normal operations, the equipment is not a source of ignition. The classification of hazardous areas in accordance with this standard does not take into consideration abnormal or emergency conditions, such as a release of hydrocarbon gas. Once a hazardous environment is detected, systems should be designed to shut down and isolate any piece of equipment that is not rated for operation in that environment. Any equipment which remains in operation following these events must be rated for operation in the hazardous environment.
- There was no visual warning system installed either on or adjacent to the helideck, to warn helicopter pilots if a condition exists (e.g. impending gas release) which may be hazardous for the helicopter, its occupants or the facility. Chapter 4, Section 3.6 of CAP 437 recommends that an automatic visual warning system be installed either on or adjacent to the helideck, if a condition can exist (such as an impending gas release or environmental conditions) on an installation which may be hazardous for the helicopter or its occupants. The system is intended to warn the flight crew of a hazardous condition upon approach/landing or to warn a helicopter already on the helideck to shut the aircraft down.

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- There was no automatic interlock system or ground fault detection system installed on the helicopter refueling system. Chapter 7, Subsection 3.6.1(b) of CAP 437 and CAP 748 state that there should either be an automatic interlock (e.g. an earth proving unit) that prevents the aviation fuel pump from running along with an associated pump-running warning indication until such time as there is positive earth bonding established between the aircraft and the helicopter refueling system or a ground fault detection system installed to advise that a ground has been established.
- Emergency response procedures did not require immediate shut down of a helicopter on deck for an impending gas release and did not clarify how this immediate communication was going to occur. In addition, it was noted that emergency procedures did not take into consideration the event when one of the helicopter pilots was not located in the cockpit.
- Hot refueling of a helicopter had become accepted/routine practice in the jurisdiction contrary to the requirement that hot refueling be undertaken only if it is required for safety reasons, including environmental conditions, as per CAP 437 and TP 4414.
- Incidents and lessons learned from incidents which occurred onboard the installation were not being shared between the installation owner/operator and the helicopter services provider.

Following this review, the Operator and the helicopter services provider were issued a report and a plan is being progressed to address all items. A number of mitigations have been implemented to prevent recurrence.

LEGISLATION

- Part III.I of the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act and Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act
 - Newfoundland Offshore Petroleum Installation Regulations Section 2, 5, 18 and Transport Canada TP 4414, Guidelines Respecting Helicopter Facilities on Ships, as amended from time to time
 - C-NLOPB Interpretation Note 11-01 – Supplementary Guidance and UK Civil Aviation Authority [CAP 437, Offshore Helicopter Landing Areas - Guidance on Standards](#), as amended from time to time
- Recommended action

OTHER REFERENCES

- [UKOOA Guidelines for the Management of Offshore Helideck Operations, Issue 5 February 2005](#)
- [NORSOK C-004 Helicopter Deck on Offshore Installations](#)
- [CAA Paper 2008/03: Helideck Design Considerations – Environmental Effects](#)
- [Offshore Helideck Design Considerations HSE Offshore Information Sheet No.5/2011](#)
- [CAP 748 Aircraft Fueling and Fuel Installation Management](#)

RECOMMENDED ACTION

Based on the preceding, for operators and helicopter service providers that have not already done so:

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- *It is recommended that Operators and helicopter services providers conduct a review of procedures and associated checklists to remove ambiguous statements about the criteria for helicopter landing and that monitoring and auditing processes ensure that the Transport Canada criteria for landing is enforced. Refer to recommendations regarding NDB/ARA (non-directional beacon airborne radar approach) as a result of C-NLOPB's review of an incident respecting a near collision between a helicopter and an offshore support vessel for which the C-NLOPB has issued a separate safety notice (C-NLOPB Safety Notice # 2016.02 - Aviation Occurrence - Risk of Collision)*
- *It is recommended that Operators and helicopter services providers review procedures and checklists to include criteria for light to no wind conditions, wind direction and locations of exhaust into the criteria for green deck notifications to the helicopter pilots. This should include leveraging technology where possible to more objectively calculate when a helicopter landing area is "green" (i.e. winds, ceiling, visibility, heave etc.). In addition, Operators are requested to review location of existing exhaust plumes and determine if additional measures (e.g. exhaust plume visualization system) can be taken to reduce the risk to helicopters.*
- *It is recommended that Operators, in conjunction with their helicopter services provider, review their collective risk assessments to ensure that all sources of ignition from a helicopter have been identified, that all sources of release onboard an installation have been identified and that the measures in place are appropriate, effective and communicated to personnel involved in helicopter operations.*
- *It is recommended that Operators review the documentation in place for describing hazardous areas, the rating of equipment in hazardous areas, the purpose of the emergency shutdown system in isolating all sources of ignition and the hazardous area rating of equipment which remains live after an emergency shutdown and ensure that the purposes of the safety systems in place are appropriately documented and communicated.*
- *It is recommended that Operators and helicopter services providers review the requirement for an automatic visual warning system to be installed either on or adjacent to the helideck, if a condition can exist (such as an impending gas release or environmental conditions) which may be hazardous for the helicopter or its occupants.*
- *It is recommended that Operators and helicopter services providers review the arrangements in place for ground fault detection or earth proving systems on the helicopter refueling system and take actions to address any noted deficiencies.*
- *It is recommended that Operators and helicopter services providers review the emergency response procedures in place to ensure that appropriate and effective procedures are in place and exercised in the event of a gas release or other emergency requiring prompt notification to the helicopter pilots of the impending situation.*
- *It is recommended that Operators and helicopter services providers review their practices for hot refueling and ensure that they are in compliance with regulatory requirements and that all hazards and risks associated with this activity have been addressed and appropriate measures implemented.*
- *It is recommended that Operators develop a process for sharing incidents and other lessons learned with their helicopter services provider and with other operators for any incident which occurs onboard a facility that raises the hazard awareness level of the helicopter pilots and other operators.*

SAFETY NOTICE

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This notice shall be posted onboard installations which are operating under an authorization issued by the C-NLOPB in a prominent place accessible to every employee at the workplace.

Questions regarding this Safety Notice may be directed to a C-NLOPB Safety Officer at the address shown below.

[Canada-Newfoundland and Labrador Offshore Petroleum Board](#)

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