

Safety Alert No. 311
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Methane Venting Hazard to Helicopter Operations

Discussion: There is a need for increased awareness of the hazard that methane and other combustible gases pose to helicopter operations on offshore oil and gas facilities. On March 24, 2011 a helicopter accident occurred that the NTSB attributed to “The loss of engine power due to an engine compressor stall as a result of ingesting methane gas during takeoff.” (see [CEN11LA252](#)). Two other accidents with similar circumstances occurred in 2013 and are currently under investigation.

Methane is a colorless, odorless gas that is lighter than air and extremely flammable. It is a natural by-product of oil production that may be captured for commercial purposes, but could be vented or flared to the atmosphere to control a sudden over-pressurization.

When vented, it can drift over the helideck where it can be ingested by the engine and act as unmetered fuel potentially causing the engine to overspeed or fail. For this reason offshore facilities generally place methane booms as far away from helidecks as practical.



In 2010 the Helicopter Safety Advisory Conference ([HSAC](#)) updated Recommended Practice ([RP](#)) [92-4](#) warning pilots, and Oil and Gas Operators, of the hazards of methane venting/flaring and providing guidance for safe operations. RP 92-4 states “*Ignited flare booms can release a large volume of natural gas and create a hot intense heat with little time for the pilot to react. Likewise, un-ignited gas vents can release reasonably large volumes of methane gas under certain conditions. Thus, operations conducted in close proximity to un-ignited gas vents require precautions to prevent inadvertent ingestion of combustible gases by the helicopter engine(s).*”

RP 92-4 warns pilots:

- (a) Gas will drift upwards and downwind of the vent. **Plan the approach and takeoff to observe and avoid the area downwind or directly over the gas vent, remaining as far away as practicable from the open end of the vent boom.**
- (b) **Exercise caution when starting or landing on an offshore helideck when the deck is downwind of a gas vent.**

RP 92-4 also advises Oil and Gas Operators:

- Notify nearby helicopter operators and bases of the hazard for planned operations.
- Wind socks or indicator should be clearly visible to provide a clear indication of the wind direction for the pilot.
- High volume large gas vents should have red rotating beacons installed to indicate when gas is venting.

The intent is that the wind sock be unobstructed by equipment or other objects on the structure and clearly visible to the pilot during his approach.

In addition to HSAC RP 92-4, the American Petroleum Institute (API) also recognizes the threat methane venting poses to helicopters and is considering this issue in the rewrite of API RP 2L. The draft 2L-1 (1 of 3 documents to replace API RP 2L) for “New Build Helideck Design” recommends:

- sources of these discharges be located as far as practicable away from the helideck and oriented so the typical prevailing wind will carry the discharges away from the helideck area.
- sniffers or other detection devices (infrared, etc.) to detect these discharges and automatically trigger status lights when discharges may present a hazard to pilots.

Despite engineering efforts to minimize the effects of methane, it is an inherent by-product of production that will continue to be released and continue to affect helicopter operations.

BSEE recommends that helicopter companies, pilots, and offshore Oil and Gas Operators thoroughly review and adhere to the guidance provided in HSAC RP 92-4 and company policies. Remember, these mitigation measures will minimize, but not eliminate, the hazards posed by vented methane.

Alertness by the pilot to the winds, the warning light(s), and to the aircraft’s performance is essential.

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A **Safety Alert** is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding an accident or a near miss. It also contains recommendations that should help prevent the recurrence of such an incident on the Outer Continental Shelf.