



HSAC

Helicopter Safety Advisory Conference

HSAC Helideck Committee Update General Meeting / Houston, TX / 17-Jan-2019

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1 – Industry Updates






Industry Updates

ICAO

-  Next ICAO Workgroup meeting is scheduled for March 2019 at HeliExpo in Atlanta, GA (USA)
-  Comprehensive update of heliport manual, dividing it into two sections to address separate onshore and offshore heliports.
-  ICAO Heliport Manual (Doc 9261) Part I (Offshore) release is pending.
 -  **NOTE:** *Half of the drawings and much of the content in Doc 9261 is pulled from HSAC RPs developed by HSAC Helideck Committee!*

HeliOffshore

-  HOHWG currently compiling global helideck incident data for analysis and subsequent use for prioritization of objectives and deliverables.
-  HOHWG working on development of Helideck InfoShares, like already in place for aircraft incidents on the HeliOffshore website.
-  HOHWG working on development of Helideck Environment Awareness video for Helicopter Pilots in line with the similar product being developed by IOGP for Helideck Team Members.

2 – HSAC RP 2016-3



HSAC Recommended Practice (RP) 2016-3
Revision 0
DRAFT r37

INSPECTION, MAINTENANCE AND OPERATION OF OFFSHORE HELIDECKS

11 January 2018

Recommended Practices (RP) are published under the direction of the Helicopter Safety Advisory Conference (HSAC). RP's are a medium for discussion of aviation operational safety pertinent to the transmission of product, energy exploration and production industry in the United States. RP's are not intended to replace individual engineering or corporate judgment or to replace instruction in company manuals or government regulations. Suggestions for subject matter are cordially invited.



What is HSAC 2016-3 about?

- Title: "INSPECTION, MAINTENANCE AND OPERATION OF OFFSHORE HELIDECKS"
- This HSAC RP together with HSAC RP's 2016-1, 2016-2 and 2016-4 will provide helideck owners and operators with design, operational, maintenance and management guidelines to engineer out the causal factors for helideck related accidents.
- All owners and users of offshore helidecks should take an active interest in the adoption and subsequent implementation of these guidelines as mandatory company references and to include proactive inspection and reporting of any discrepancy or safety concern to ensure it is remedied as quickly as possible. It is only with this determination and coordination that the O&G industry will be able to achieve 'zero' helideck related incidents.
- 190 page document, including many appendices containing checklists, etc.



HELIDECK AND FUEL SYSTEM RESPONSIBILITIES

- Regulatory Oversight
- Helideck Responsibilities
 - Helideck Owners
 - Helicopter Operators
- Fuel Systems and Refueling Responsibilities
 - Fuel System Owners
 - Pilots and Helicopter Operators



HELIDECK ASSESSMENTS

- Five-Year Structural Assessment
 - On a minimum of a five-year basis, the helideck should be assessed for structural integrity/damage by an engineer for it to be in conformance with the facility owner plan
- Incident / Damage Assessment
 - A structural assessment should be completed by an engineer following an incident or damage
- Risk Assessments
 - An initial and five-year risk assessment of the helideck and its associated systems should be completed for all facilities, inclusive of a dedicated Risk Assessment (RA) for firefighting systems
This RA should also include an assessment of the emergency response preparedness



HELIDECK OPERATIONS

- Documentation
 - Many controlled documents required, including Helideck Operations Manual (HOM) and Helideck Information Plate (HIP)
- Helideck Environment
 - Helideck Surface, Netting, Discharges, and Turbulence Requirements.
 - Bird Control

• Markings	NEW: Obstacle Warning Marking for OFDS
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- Lighting Requirements
- Weather
- Communications
 - Normal and Emergency Comms Requirements
- Fuel

• Security	Screening, Refusing Transport, Drugs & Alcohol, Fitness to Fly
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Obstacle Warning Marking for OFDS

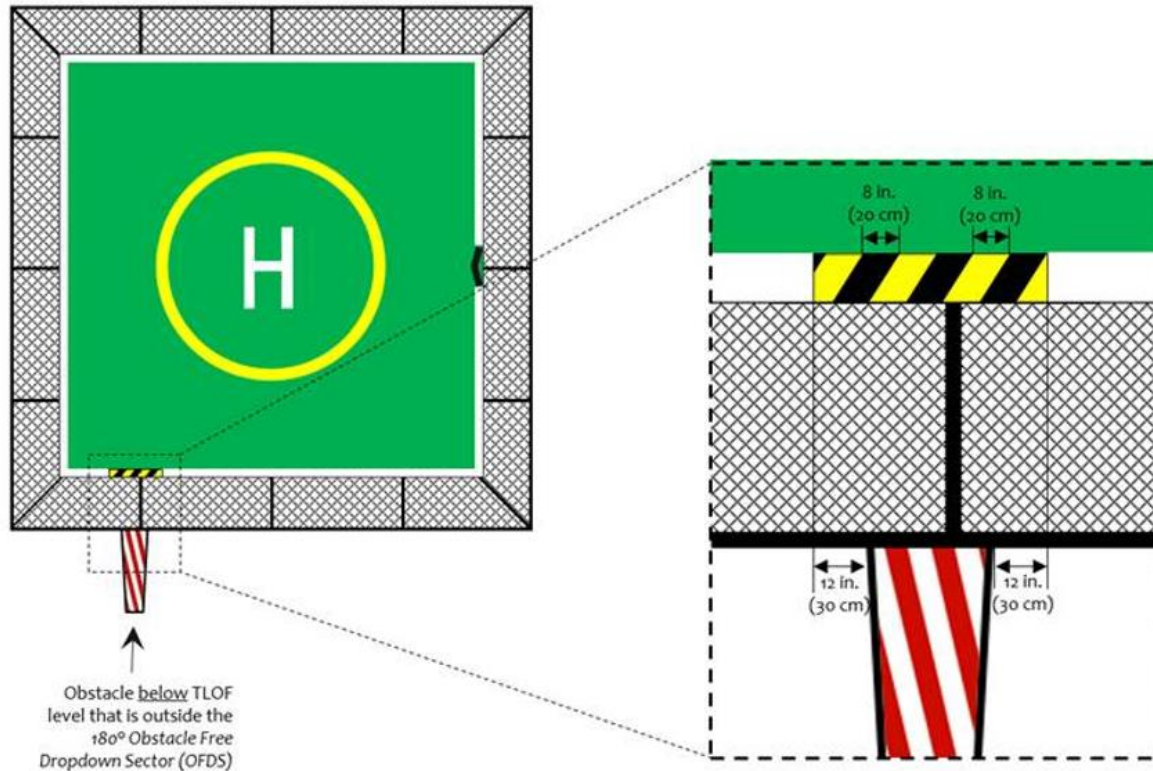


Figure 7.4.2.2 – Obstacle Warning Marking for OFDS

Note 1: Alternative conspicuous color paint schemes should be considered for clearly differentiating the vent pipes or flare piping, etc. in the vicinity the helideck from its surroundings/environment, especially on smaller legacy helidecks.

Note 2: Because they are thin and particularly difficult to see, whip antennas should not be placed within 1.5 ft. (5 m) of the edges of the LOS, even if technically they meet the obstacle clearance requirements.



FLIGHT OPERATIONS

- Manual / Matrix of Permitted Operations (MOPO)

- Night or Instrument Flight Rule (IFR) Operations
- Restricted Helideck Operations

- Helideck Parking Areas

- Maintenance Helideck
- Second Helicopter Operations to Helidecks Already Occupied with a Helicopter
- Closing Helidecks
- New Facilities
- Crane Operations

- Perforating Operations
- Hydrogen Sulfide Gas (H₂S)
- Gas Venting - Operations Near Gas Vent Booms / Flare Towers
- Helicopter - Ship/Tanker Operations
- Weather Planning and Operations
- Helidecks on Floating Facilities
- External Load Operations
- Winching (Hoisting) of Personnel
- Hazard Reporting



HELIDECK MANAGEMENT

- Helideck Team Composition
- Flight Crew Responsibilities:
 - Procedures for Landing and Post Landing of Helicopters
 - Procedures for Helicopter Turnaround
 - Procedures for Departing Helicopters
 - Procedures for Refueling
- Helideck Team Personal Protective Equipment (PPE) and Supporting Equipment
- Clear Deck Policy
- Light and Hand Signals NEW: HLO Hand Held Light Signals
 - Use of wheel chocks
 - High Winds or Adverse Weather
 - Passenger and Cargo Management
 - Helideck Systems and Equipment
 - Emergency Response



HLO Hand Held Light Signals

- Hand held lights with colored filters below may be used by HLOs in the event of radio communications failure with helicopters or to wave off helicopters that have not been provided a 'Green Deck'.

Light Color	Aircraft in Flight	Aircraft on Helideck
Steady Green	Green Deck	Green Deck
Steady Red	Continue Circling	Stay in Position
Flashing Red	Unsafe, Do Not Land	NA



HELIDECK & ASSOCIATED SYSTEMS MAINTENANCE

- Helideck Inspections
- Preventive Maintenance
- Corrective Maintenance
- Modifications and Upgrades
- Helideck Documentation
- Fuel System Design, Maintenance and Inspection



FIREFIGHTING STOCK LEVELS, EQUIPMENT, MAINTENANCE AND INSPECTION

- Extinguishing Media Stock and Discharge Rate Requirements
- Crash-Fire-Rescue Equipment
- Firefighting Maintenance Requirements
- Firefighting System Inspections
- Other Helideck Associated Equipment Maintenance and Inspection



TRAINING

- Helicopter Landing Officer (HLO) and Helideck Assistant (HDA)
- Helideck Inspector Training and Competence
- Firefighting Training
- Refueling Training (where a refueling system is installed on the facility)
- Weather Observer Training
- Passengers
 - HUET
- Dangerous Goods / Hazardous Materials (DG/HAZMAT)
 - Awareness / Acceptance / Shipping



EMERGENCY RESPONSE

- Risk Assessment
- Emergency Response Plans (ERP)
- Documents
- Planning Considerations
- Emergency Procedures for Helideck Teams
- ERP Scenario Drills and HLO Staff Training
- Planning and Conducting Emergency Response Drills
- Accident and Incident / Hazard and Near Miss Reporting
- Firefighting



APPENDICES

- Appendix 1 - Sample Safety Critical Equipment (SCE) Listing
- Appendix 2 – Sample MOPO Matrix
- Appendix 3 – Helideck and Associated System Maintenance, Inspection and Helideck Daily Status Reports
- Appendix 4 - Fuel System Design, Maintenance and Inspection Requirements
- Appendix 5 - Fire Fighting System Maintenance Requirements
- Appendix 6 - Sample Weight Scales Self-calibration Record
- Appendix 7 - Weather System Monthly Maintenance Program



APPENDIX 3 - Attachments

- APPENDIX 3 – HELIDECK AND ASSOCIATED SYSTEM MAINTENANCE, INSPECTION AND HELIDECK DAILY STATUS REPORTS
 - Attachment 1 – Helideck and Associated System Maintenance Requirements
 - Attachment 2 – Helideck Daily Inspection Checklist
 - Attachment 3 – Helideck Monthly Inspection Checklist
 - Attachment 4 – Helideck Initial or Annual Inspection Checklist
 - Attachment 5 – Helideck Pre-Audit Checklist
 - Attachment 6 – Helideck Daily Status Report



APPENDIX 4 - Attachments

- APPENDIX 4 - FUEL SYSTEM DESIGN, MAINTENANCE AND INSPECTION REQUIREMENTS
 - Attachment 1 – Fuel System Design
 - Attachment 2 – Fuel System Maintenance Requirements
 - Attachment 3 – Daily Fuel System Checklist
 - Attachment 4 – Fuel System Monthly Inspection Checklist
 - Attachment 5 – Fuel System Quarterly Inspection Checklist
 - Attachment 6 – Fuel System Six-Monthly Inspection Checklist
 - Attachment 7 – Fuel System Annual of Initial Inspection Checklist
 - Attachment 8 – Fuel Transport Tank Checklist
 - Attachment 9 – Aircraft Refueling Checklist



Next steps ...

- 1) Helidecks Committee final review and vote by email
- 2) HSAC Board of Directors to approve HSAC RP 2016-3 and publish on HSAC Website
- 3) All owners and users of offshore helidecks should take an active interest in the adoption and subsequent implementation of these guidelines as mandatory company references and to include proactive inspection and reporting of any discrepancy or safety concern to ensure it is remedied as quickly as possible. It is only with this determination and coordination that the O&G industry will be able to achieve 'zero' helideck related incidents.
- 4) Promotion.
 - We could present the contents of the HSAC RP 2016 series at your company upon request.
 - Next HSAC Meeting in New Orleans in the Fall, we could set up a training day for HSAC members to get acquainted with the HSAC RP 2016-3 document.

3 – HSAC RP 2019-1



HSAC Recommended Practice (RP) 2019-01
Revision 0
DRAFT 1r1

OFFSHORE HELICOPTER INCIDENT BOWTIE

11 January 2019

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What is HSAC RP 2019-01 about?

- Title: OFFSHORE HELICOPTER INCIDENT BOWTIE
- Offshore Helideck Departures and Arrivals are inherently complicated with inherent risk and therefore Offshore Helicopter Transport is considered a Hazard. For every safe flight this hazard is contained.
- The small landing surfaces, environmental conditions and vicinity to objects and obstacles associated with the offshore facility and its helideck layout result in many threats and consequences that might release the Offshore Helicopter Air Transport Hazard into an Offshore Helicopter Incident top event.
- The complexity of offshore helicopter operations makes the depiction of all associated threats and consequences in a single Bow-Tie very comprehensive.
- Without pretending to be complete, the HSAC Helideck Committee has developed a Bow-Tie that incorporates the major threats and consequences associated with offshore helicopter operations to a helideck.

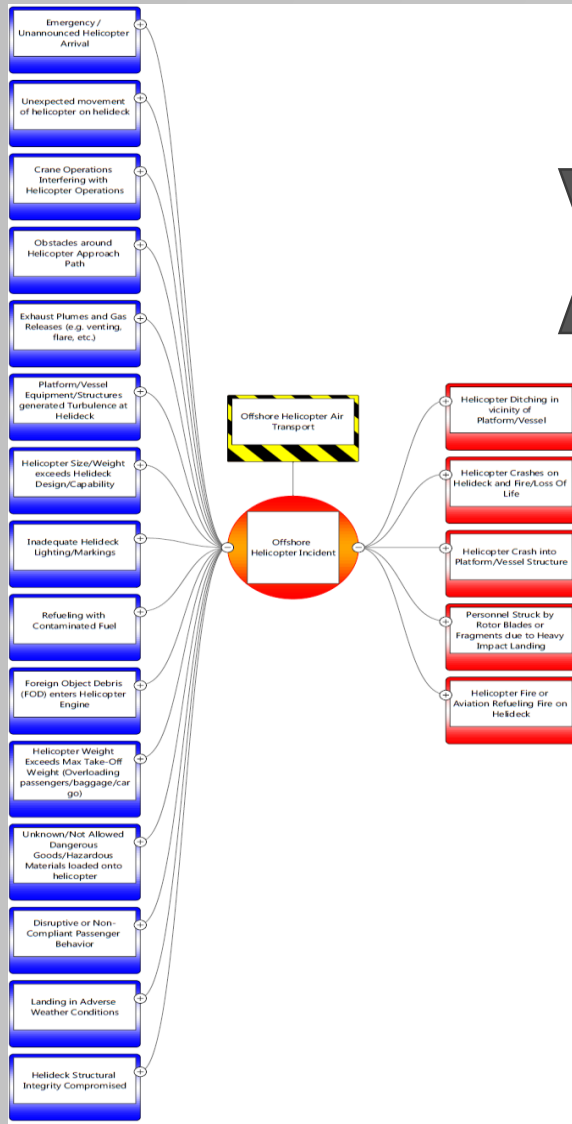


What is HSAC RP 2019-01 about? - continued

- If all associated controls, escalation factors and escalation controls were to be shown for the Bow-Tie, the printed version would cover the space of a single wall of the average office; therefore only the rolled-up version of each threat line is shown, where for each specific line the controls, escalation factors and escalation controls are shown in a tabular depiction.
- Each cause control, outcome control and escalation control was reviewed and the associated Safety Critical Tasks (SCTs) and Safety Critical Equipment (SCE) were identified. In the continued development and improvement of HSAC RP 2016-3 these SCTs and SCE are used to:
 - a. create the roles and responsibilities for key positions by combining safety critical tasks (SCTs) into safety critical roles;
 - b. provide a list of SCE needed to safely perform offshore helideck operations. For SCE the inspection and maintenance requirements to keep it fully operational are also provided in the Helideck HSAC 2016 RP 2016-3



Graphical Depiction



3.1. Threats

Each Control could have one or more Escalation Factors that could render the Control ineffective, to prevent this from happening, Escalation Controls are put in place. The Escalation Factors and Escalation Controls are NOT shown in the graphical depiction of the Bow-Tie Threat branch, but are shown in the table below using the following color coding (legend is repeated on each page in the header):

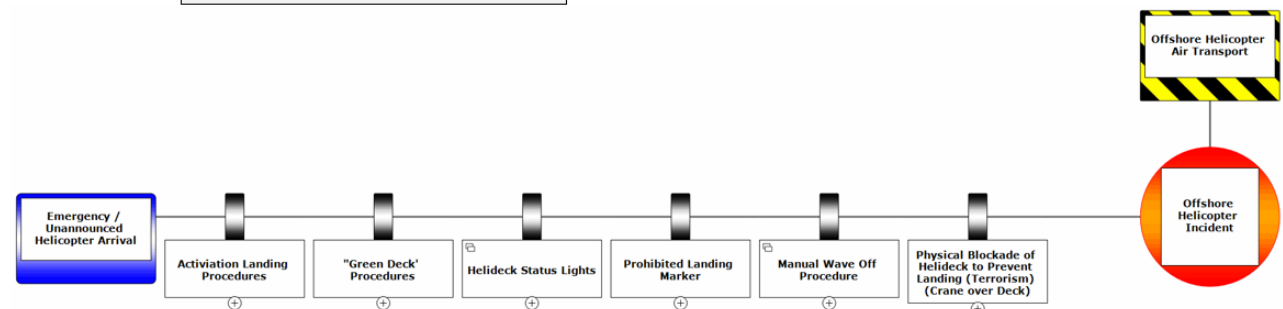
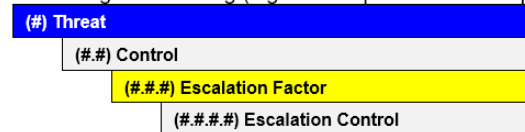


Figure 10: Threat - Emergency/Unannounced Helicopter Arrival

					Safety Critical Equipment	Safety Critical Task	NUI
1	Threat 1: Emergency / Unannounced Helicopter Arrival						
1.1	Activation Landing Procedures				[-3] Par 5.2.1.1, [-3] Par5.2.1.7, [-3] Par 7.2, [-3] Par 7.2.1, [-3] Par 13.3.1. Helideck Operations Manual.	[-3] Chapter 9	N/A
1.1.1	Helideck Team Member Unavailable						
	1.1.1.1	Safety Critical Role Assignment by Leadership			Helideck Operations Manual.	[-3] Ch 9	N/A
	1.1.1.2	Roster Redundancy (Multiple HLOs/HDAs on each shift/hitch)			Helideck Operations Manual.	[-3] Par 9.1 Note 2	N/A
	1.1.1.3	Helideck Team Assembly Procedures			Helideck Operations Manual.	[-3] Par 9.3	N/A
	1.1.1.4	Helideck Manning Levels in HLO Manual			Helideck Operations Manual	[-3] Par 9.1	N/A
1.1.2	Landing Procedure not followed						N/A
	1.1.2.1	Landing Procedures in HLO Manual			Helideck Operations Manual.	[-3] Par 9.3	N/A
	1.1.2.2	Helideck Team Training			Helideck Operations Manual.	[-3] Par 12.2	N/A



"TBD"

1.4	Prohibited Landing Marker		[-3] Par 8.8. Prohibited Landing Marker.	[-3] Par 8.8 [-3] Appendix 1 [-3] Appendix 3 Attachment 1 Par 5.2 [-3] Appendix 3 Attachment 3 Par 7 [-3] Appendix 3 Attachment 4	✓
1.4.1	Marker Missing / Unawareness				✓
	1.4.1.1	Marker Stored in HLO Locker	[-3] Appendix 1. Prohibited Landing Marker.	[-3] Appendix 3 Attachment 1 Par 5.2	N/A
	1.4.1.2	Helideck Team Training	Helideck Operations Manual	[-3] Par 12.2	N/A
	1.4.1.3	Annual Exercise to Roll-out Marker	Prohibited Landing Marker, Helideck Operations Manual.	[-3] Par 13.6.6	N/A
	1.4.1.4	Annual Helideck Inspection	Helideck Operations Manual	[-3] Par 11.4.4	✓
1.4.2	Pilot ignores Marker				✓
	1.4.2.1	Initial/Recurrent Pilot Training	Prohibited Landing Marker,	TBD	✓
	1.4.2.2	Air Operator OPS Manual Reference for 'Closed' Helidecks	Helicopter Operator's Training Manual.	TBD	N/A
	1.4.2.3	HLO Communication	Helideck Operations Manual	TBD	N/A
	1.4.2.4	NOTAM System	NOTAM System	[-3] Par 8.19.1.5	✓
	1.4.2.5	HSAC RP 2016-03 Light Signal Procedures	[-3] Par 9.9.2. Helideck Operations Manual, Signal Light.	[-3] Par 9.9.2	N/A
1.4.3	Marker Improperly Secured				✓
	1.4.3.1	Helideck Team Training	Prohibited Landing Marker, Helideck Operations Manual	[-3] Par 12.2	N/A
	1.4.3.2	Annual Exercise to Roll-out Marker	Prohibited Landing Marker, Helideck Operations Manual	[-3] Par 13.6.6	N/A
	1.4.3.3	Procedures in HLO Manual	[-3] Appendix 3 Attachment 1 Par 5.1. Helideck Operations Manual.	TBD	✓
	1.4.3.4	Annual Helideck Inspection	Helideck Operations Manual.	[-3] Par 11.4.4	N/A



Next steps ...

- 1) Helidecks Committee final review and vote by email
- 2) HSAC Board of Directors to approve HSAC RP 2019-1 and publish on HSAC Website
- 3) Use HSAC RP 2019-1 as road map to further develop guidance for controls/barriers that have not yet been addressed in HSAC RPs
- 4) Helideck Owners and Offshore Helicopter Operators can use the bow-tie for their SMS, Safety Case, HSSE Case, Risk Assessments, Incident Investigation, Procedure development, etc.



4 – Helideck Committee Future Work



What do we intent to do next?

- Create Helicopter Operator document linked to Bow-tie controls/barriers depicted as TBD (Blue)
 - Representatives from Helicopter Operators are needed to develop this HSAC RP.
 - Please see me during the break to sign up!
- Update HSAC RP 2016-1, -2 and -4 based on new developments in HSAC RP 2016-3
- Update existing/develop new RPs based on Bow-tie controls/barriers depicted as TBD (Yellow)
- Interest in developing a document for helideck team manning requirements based on the available manpower at the platform. Workshop next HSAC meeting?



Helideck Committee Secretary

- Volunteers?
- To do what?
 - Meeting minutes
 - Keep accurate committee member list
 - Manage committee votes and document results
 - Other...
- Please see me during the break!



Thank you

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HSAC - Safety Through Cooperation - Since 1978