HSAC Recommended Practice (RP) # 2004-01

Offshore Helideck Inspections

Background

Annually the offshore oil industry suffers from accidents and incidents as a result of obstacle strikes on or near offshore helidecks. Pilots and helideck inspectors often report equipment being added that present new obstacles on offshore facilities or of helideck/marking condition deterioration. These obstacles and hazards can present significant risk to approaching, departing and maneuvering helicopters. The Gulf of Mexico guideline for helideck design is the American Petroleum Institute Recommended Practice (RP) 2-L, which provides some basics obstacle criteria, but it does not provide significant details on identification of helideck obstacles that can present hazards. There are common discrepancies/issues that facility and helicopter operators should be alert to.

Contributing Causes of Helideck Incidents/Accidents

1. Lack of reporting of hazards by pilots; and/or
2. Poor enforcement/understanding of what constitutes a helideck obstacle/hazard and API RP 2L requirements for helidecks; and/or
3. Lack of periodic high quality helideck inspections and remedy of defects

Recommended Practices

1. Pilots/Helicopter Operators:

a. Hazard/Non-Conformity reports should be submitted for any helideck hazards and follow-up actions initiated. In particular helicopter pilots or helideck inspectors should note the items listed below.

(1). Hazards that could snag the aircraft landing gear. Examples include raised tie-down points, deck plates with raised edges, uneven helideck surfaces, and obstructions around the helideck perimeter exceeding 6 inches in height. The only items typically allowed above deck level in the obstacle free area is perimeter / flood lighting (it is preferred that these have frangible fittings/lenses).

(2). Sections of safety fence that may be well above helideck level.
(3). Raised stairwell handrails (some installations have railings/handrails that can be raised/lowered).
(4). Excessive bird droppings causing the helideck to be slick or obscuring markings.
(5). Lack of an efficient wind indicator (wind socks are preferred as they provide relative wind speed)
(6). Lack of markings or non-standard markings for providing adequate visual cues (see API RP 2L)
(7). Inadequate obstacle clearances from the main rotor (1/3 rotor diameter clearance required).

b. Helidecks should provide good friction contact for the landing gear. All helidecks should be covered with non-skid paint or an equivalent non-skid surface (bare wood/steel without non-skid surfaces are not adequate).

c. Pilots should not attempt to land on an offshore helideck if an obstacle appears to have been added that could present a hazard to flight.

d. Provide reported helideck hazard information to pilots and the owners of the facilities.

2. Offshore Helideck Supervisors/Owners:

a. Before approving installation of new helidecks or new equipment in the vicinity of helidecks, review API RP 2L obstacle clearance requirements and review the plans with the helicopter operator/Aviation Advisory personnel.

b. Notify (in writing) helicopter operators / bases of any new construction and the hazard it may present.

c. Excessive bird droppings can obscure helideck markings that are important for pilot visual clues. These droppings present a hazard by reducing surface friction available to aircraft / personnel and should be removed.

d. Coordinate inspection of all helidecks on an annual basis, ensure defects are remedied and hazards reported to operators.

3. Helideck Inspection Interval and Inspectors:

a. All helidecks should be inspected annually using an appropriate checklist (sample attached to this text).

b. These inspections may be completed either by the helicopter operator or Aviation Advisory personnel, who also develop follow-up actions to remedy any discrepancies.

c. Helideck inspectors should receive appropriate hands-on offshore helideck inspection training by personnel with considerable experience inspecting helidecks. It is recommended that such training be documented.

Recommended Practices (RP) are published under the direction of the Helicopter Safety Advisory Conference (HSAC), P.O. Box 60220, Houston, Texas, 77205. RPs are a medium for discussion of aviation operational safety pertinent to the energy exploration and production

industry in the Gulf of Mexico. RPs are not intended to replace individual engineering or corporate judgement nor to replace instruction in company manuals or government regulations. Suggestions for subject matter are cordially invited.

HSAC OFFSHORE HELIDECK INSPECTION CHECKLIST

References for Inspection Checklist:

1. American Petroleum Institute (API) RP2L (referenced as API)
2. Dept of Transportation (DOT) Code of Federal Regulation (CFR) Parts, Parts 107,108 and 143.120 for floating helidecks outside the US Outer Continental Shelf (OCS) with oversight by the USCG (referenced as: CFR)
3. International Chamber of Shipping (ICS) "Guide to Helicopter/Ship Operations" for shipboard helidecks - such as tanker and seismic vessels.
4. International Maritime Organization (IMO) Code for Shipboard/Mobile Offshore Drilling Unit (MODU) helidecks (referenced as IMO), CFRs referenced in 2 above also apply in OCS waters.
5. National Fire Protection Association "NFPA 418 Standard for Heliports".
6. Industry Recommended Practices (RPs - Including but not limited to HSAC RPs)

Differences in Reference Criteria for Floating Facilities, Vessels, and MODUs: There are some variances for helideck design criteria (helideck size, markings, lighting, etc.) in the above references for these facilities and the appropriate reference should be reviewed when inspecting these facilities. Where possible, these items have been included in the Checklist in the specific discussions.

Non-compliances: Record each non-compliance with a note number and summarize at the end of the checklist in the Summary of Non-Compliances.

Inspection Requirements: Annual Checks should be recorded on the form and retained.

INSPECTION SIGNATURES

Inspector	Facility Name/Block Name	Date
Additional Remarks: [ ] - Check here; use back for comments.		

INSPECTION CHECKLIST

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
1.0. GENERAL INFORMATION			
1.1. Type of Installation: Platform, Ship, Semi Sub, Jack-Up, Support Vessel, Barge, FPSO, Other (circle one)	Contact Name: Phone:		
1.2. Is the previous review report available?	Copy Avail? Yes or No Date: Discrepancies remedied? Yes or No		HSAC RP 2004-04 Annual
1.3. Location:	Lat: Long:		
1.4. Windsock: Windsocks are required for every platform and are recommended over metal wind indicators.	Lighting if used at night? Yes or No Condition: Location:		API 6.2 CFR 108.241(a)(1) IMO 13.5.

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
1.5. Fuel System: If available, should Maintained in accordance with HSAC RP 2004-003 and Checklist. Should not protrude above deck level?	Available? Yes or No Maintained per RP 2004-003? Yes or No? Below deck level? Yes or No		HSAC RP 2004-03 inspected annually as a minimum. API 6.1.
1.6. Weather Available? Minimal weather equipment is recommended for manned platforms. Pitch, roll, and heave required for floating facilities.	Yes or No Last Calibration:		API 6.2. Annual
1.7. Communications Available: Is the platform capable of communication with aircraft (required for manned platforms)?	Aviation VHF: Yes or No Company FM? Yes or No Freq:		HSAC RP 93-2
2.0. HELIDECK SURFACE:			
2.1. Shape and Dimensions: **2.1.1. Helideck Environment?** **2.1.2. Size Consistent with Environment?** Note - MODUs and floaters the min size is 1.0 D in the Outer Continental Shelf (OCS - See USCG 143 & 108.233). MODUs inside the OCS may be 0.75 D in non-hostile environments (See IMO Code).	Shape: Length: Width: Hostile or Non-Hostile? (Circle One) Non-Hostile Manned 0.83D? Non-Hostile Unmanned 0.63 D, but no less than 27' x 27'? Hostile 1.0 D?		API 4.7 API 4.2. & 4.7. API 4.7 CFR 108.233(1) IMO 13.3.2-3
2.2. Obstacle Sectors:			API 4.6, 4.7.4.
2.2.1. Obstacle Free Sectors Consistent with Environment? No obstacles over 2-inches above deck surface in the obstacle free sector. **2.2.2. Obstacle Sectors Consistent with Environment?** Obstacle free from the center of the helideck to 0.83D. Non-Hostile Unmanned - not applicable, must be 360 obstacle free above deck. **2.2.3. Falling Sector Consistent with Environment?** No obstacles below the deck with a 5-1 falling gradient. Non-hostile environments, not applicable.	Non-Hostile /Hostile Manned - 210 degrees? Non-Hostile Unmanned - 360 degrees? Non-Hostile /Hostile Manned - 150 degrees (opposite the 210 degree sector)? Hostile Manned - 180 degrees?		API 4.6, 4.7.4. CFR 108.233(1) IMO 13.3.2-3 API 4.6 CFR 108.233(1) IMO 13.3.2-3 API 4.6.2 (2) CFR 108.233(1) IMO 13.3.2-3
2.3. Helideck Height Above Water (in feet):	Feet:		Industry Practice
2.4. Primary Color:	Color:		API 5.11.1

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
2.5. Surface Type and Condition: **2.5.1.** Surface free of excessive contamination (bird droppings, oil, etc.)? **2.5.2**. Surface and/or safety net should have no loose objects?	Wood , plywood, steel, aluminum, fiberglass, other (Circle one) Yes or No Yes or No		API 5.6
2.6. Surface Friction: All materials, covering, or coatings used to provide a nonskid surface and should be structurally fastened or bonded to the helideck.	Satisfactory or unsatisfactory skid resistance? Describe:		API 5.6 HSAC RP 93-3 CFR 108.235(d) IMO 13.3.4.
2.7. Supporting structure: Visual inspection for soundness of supporting structure under the helideck.	Adequate - Yes or No		Industry practice
2.8. Safety Fence/Shelf: Fence or shelf at least 5' wide (horizontally) around the perimeter of the helideck. The outer edge must not protrude above the level of the flight deck. Should support a minimum of 200 lbs. at any point. Note - CFR and IMO allow fence to be 6 inches above deck level for MODUs and floating facilities.	Describe: Wire Mesh/Polypropylene Adequate Size? Yes or No Condition: Above deck level?		API 5.8 CFR 108.235(e) & 108.235(d)4 IMO 13.4.3.
2.9. Drainage: Should be adequate to eliminate standing water.	Drainage adequate: Yes or No		API 4.13
2.10. Deck Seal: Is helideck sealed? (no holes in deck for leaking/burning fuel)	Sealed drainage (MODU and floaters)		CFR 108.235(d)(2) NFPA 6.3.
2.11. Aircraft Tie Down Points: Minimum of four (4). Should be recessed so as not to be a skid gear or tripping hazard. Tie-down configuration should be based on the center of the touchdown marking and suitable for the largest size of helicopter expected to use the deck. Must be marked with a red 8-inch circle if protruding above deck level.	Number: Type: Condition: Marking if necessary: Spacing (15 feet between minimum): Recessed for MODU and floaters:		API 5.9 CFR 108.235(3)(d)(3) IMO 13.4.2.
3.0. OBSTRUCTION AND HAZARD MARKINGS:			API 4.6, 5.11.3 CFR 108.235(d)(4) IMO 13.4.
3.1. Main Rotor Obstacle Clearance: M/R clearance (1/3 of the RD) from the obstacle. Where helidecks will not meet this requirement in the allowed obstacle sector, obstruction should be clearly indicated by a solid red arc centering on the obstruction at 1/3 RD on the deck surface.	Proper Clearance? Yes or No Proper Marking: Yes or No		API 5.11.3.(1)
3.2. Tail Rotor Obstructions: Obstructions on/near the helideck over 2-inches, obstruction should be marked with a 3' wide solid red rectangular border	Proper Clearance? Yes or No Proper Marking: Yes or No		API 5.11.3.(2)

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
3.3. Landing Gear Obstructions: Any item raised above the physical deck surface above. Landing gear obstructions (ex. tie-down points) denoted by an 8" red circular band around the obstruction.	Proper Clearance? Yes or No Proper Marking: Yes or No		API 5.11.3.(3)
4.0. OPERATIONAL ISSUES:			
4.1. Turbulence: Is structure turbulence apparent? Is there an air gap beneath the helideck (7 feet recommended)? Do the prevailing winds cause problems to safe flight?	Describe any concerns:		API 4.8.1.-2.
4.2. Winds: Can approaches/departures be made into prevailing winds? Do the prevailing winds cause problems to safe flight?	Describe any concerns:		API 4.5, 4.8.
4.3. Operational Warnings:			API 5.11.4. HSAC RP 92-1
4.3.1. Perforation Operations:	Personnel aware of RP procedures? Warning panels available (one per field area)?		HSAC RP 92-2
4.3.2. H2S Prone Areas	Air packs available for pilot use? Pilots trained? Red rotating warning beacon for H2S located near stairwell?		HSAC RP 92-3
4.3.3. Hot/Cold Gas Discharge:	Vent Locations: Are hot / cold emissions possible across approach/departure path? Beacon for raw gas discharge located near the helideck stairwell?		API 4.8.2. HSAC RP 92-4
4.3.4. Helideck Closing Procedures:	Warning panel available (one per field area)? Personnel aware of procedures?		HSAC RP 92-5
4.4. Crane Operations: Cranes should have flashing or rotating light wired to be on when crane is running, if crane can reach the helideck?	Beacon (red) on the crane cab?: HSAC Decal in crane cab?: Boom, headache balls, and hook painted int'l orange? Boom cradled with not in use? Operator Knowledge Helo Ops:		API 5.11.4. HSAC RP 89-1

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
4.5. Prohibited landing marker: A white "X" formed from panels measuring twenty-four (24) inches x thirty (30) feet is required (typically vinyl) for closing of the helideck for unserviceability or other reasons.			HSAC RP 92-5 API 5.11.4.
4.6. Helideck Local Procedures Manual: Company's should be encouraged to develop, for pilot use, a Local Procedures Manual detailing operational procedures, hazards, etc for each helideck. These Manuals should include as a minimum the following: overhead and side views of the helideck, size/weight capability, markings, lighting (if installed), communications, weather capabilities, obstacles, turbulence issues, hazards, and any specific operational procedures. These often take the form of "approach" plates.			Industry practice
5.0. MARKINGS:			
5.1. Helideck ID: Should be marked with Company name, area and block number.	Proper Marking? Yes or No ID Marking:		API 5.11.1. CFR 108.241(a)(3) & (b) IMO 13.5.2.2.
5.2. Load Bearing Area: Max allowable weight to the nearest thousand pounds. Below the maximum allowable weight designation, the helideck dimension is shown to the nearest foot. See 5.3 below for dimensions.	Proper marking? Yes or No Weight Marking:		API 5.11.2
5.3. Size of Helideck: Red numerals on a white background, located to the right and above the helideck symbol, in line with and visible from the principal direction of approach. The square and numeral should be 24 inches in height. **Unrestricted**: ground effect area = aircraft rotor diameter. May include safety shelf but not safety fence. **Restricted**: available ground effect area is less than rotor diameter.	Proper marking? Yes or No Size Marking: Restricted "R" Marking Located to right of Size Marking if required? Yes or Not Req'd		API 4.6.3, 5.11.2. Industry Practice
5.4. Aiming Circle: 20' diameter with 16" wide stripe to mark circumference. Should mark center of **available** helideck. (Not necessarily center of helideck). IMO code sizes are different for MODUs.	Proper marking? Yes or No		API 5.11.1 CFR 108.241(a)(3)(iii) IMO 13.5.2.3.
5.5. Landing H: White "H" inside Circle (10 feet high x 5 ½ feet wide) with a line width of 16 inches.			RP2L, 5.11.1 IMO 13.5.2.4.
5.6. Passenger Access Route: A 36" wide walkway should be marked from the aiming circle to the **primary** access route.	Proper marking? Yes or No		Offshore Heliport Design Guide, page 12.
5.7. Stairwell Opening: A 3' wide solid red/white hash marked rectangular border should be used to mark the primary stairway opening. (Individual Company Option)	Proper marking? Yes or No		Industry practice

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
5.8. Perimeter Line: A white perimeter line with a width of 16 inches should be painted around the helideck surface that is load bearing.	Proper marking? Yes or No		API 5.10 CFR 108.241(a)(3)(ii) IMO 13.5.2.1.
6.0. LIGHTING (only required where night flights are planned and should include windsock as noted in Section 1);			
6.1. Perimeter: Perimeter lights, (minimum of 12), alternating yellow and blue (30-60 watts) spaced at intervals (no more than 10 feet) to adequately outline the flight deck for any facilities where night flights are planned. Upper part of the frangible light guards should be no more than 2" above the helideck. Note- CFR and IMO allow lights to be up to 6 inches. IMO also specifies lights should be all yellow	Proper Lighting? Yes or No Operational? Yes or No Height? Frangible? Connected to emerg. power supply?		API 5.10 CFR 108.241(a)2 IMO 13.4.1., 13.5.3.21.
6.2. Obstruction Obstructions that are not obvious should be marked with omni-directional red lights of at least 30 watts. Where the highest point on the platform exceeds the elevation of the helideck by more than 50 feet (15 meters), an omni-directional red light should be fitted at that point, with additional such lights fitted at 35 feet (10 meters) intervals extending to the elevation of the helideck.	Proper Lighting? Yes or No Operational? Yes or No Connected to emerg. power supply?		API 5.10.
6.3. Stairwell: For platforms where night flights are planned, stairwells should be lighted?	Lights available if necessary? Yes or No Connected to emerg. power supply?		API 5.10.
6.4. Flare:	Location: Red Light /Beacon Installed? Markings:		HSAC RP
6.5. Emergency power supply: Emergency power supply should provide power to the perimeter and obstruction lighting and to lighting along the helideck access and egress routes.			API 5.10
7.0. MANNED PLATFORMS (In addition to items referenced for manned platforms in Section 1):			
7.1. Passenger Manifesting: All passengers should be manifested either for crew change or interfield.	Describe how manifesting is handled:		Industry Practice
7.2. Flight Following Interfield: Interfield block ships should be provided flight following.	Describe how interfield flight following is managed:		Industry Practice
7.3. Offshore Operations Personnel:			

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
7.3.1. Knowledge of Company's Adverse Weather policy?	Knowledge adequate? Yes or No Current Procedure Posted? Yes or No		Industry Practice
7.3.2. Knowledge of Night Medevac Procedure?	Knowledge adequate? Yes or No Current Procedure Posted? Yes or No		Industry Practice
7.3.3. Knowledge of Clear Deck Procedure?	Knowledge adequate? Yes or No		HSAC RP 88-1
7.3.4. Stretcher for Medical Evacuations?			Industry Practice
7.3.5. Emergency Response Plan (ERP): Does it include aircraft fire fighting, aircraft mishaps, aircraft emergency shutdown procedures, etc? Does it include aviation emergency responsibilities for HLO, OIM/Captain and Radio Operator?	Is the procedure adequate? Yes or No Are personnel aware of contents? Yes or No Are personnel trained on response to aircraft emergencies? Yes or No Are emergency rescue charts for the aircraft available? Yes or No Do platform emergency drills include acft emergencies? Yes or No		NFPA Appendix A Industry Practice
7.4. Passenger Handling:			
7.4.1. Suitable waiting area for passengers: Minimum of (7) feet below the elevation of the flight deck.			API 4.9 HSAC RP 88-1
7.4.2. Video Tape for briefing Passengers:			Industry Practice
7.4.3. Calibrated weighing scale?	Passengers and baggage weighed? Yes or No		Industry Practice
7.4.4. Signs (Recommended for Manned Facilities):	Clear Deck Policy: Hearing Protection Reqmt's. Main and Tail Rotor Hazard: Clothing required for flight: No Smoking (with fuel systems):		HSAC RP 88-1 Industry Practice
7.4.5. Helideck Attendants: Although not mandated, does the platform have a Helicopter Landing Officer?	Has the HLO attended an approved HLO course? Yes or No Is competence checked periodically?		Industry Practice
7.6. Battery cart condition (if available)**:**	Maintained?		Industry Practice
7.7. Second Helideck Escape Stairwell / Ladder (required for manned structures)**:**	2d escape Markings? Located opposite of primary stairwell?		API 5.7. CFR 108.235 (f) IMO 13.4.4
8.0. SAFETY			

AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
8.1. Fire Fighting:			
8.1.1. Is fire fighting equipment available? Fire Extinguisher Type (BC), with minimal size of 30 pounds required at each exit and at fuel stations unless they are co-located.	Available? Yes or No Size: Type:		NFPA 7.1. API 6.3
8.1.2. Fire Equipment Maintenance:	Inspected monthly? Yes or No Date of Last Hydrostatic Insp.: Properly Tagged? Yes or No		NFPA 10 5 Year
8.1.3. Fire Fighting Personnel:	Are personnel trained? Yes or No Are personnel alerted when helicopter operations are pending? Yes or No		NFPA Appendix A
8.1.4. Fire Drills:	Are drills conducted periodically and recorded? Yes or No		NFPA Appendix A
8.1.5. Location and Number of Units: Typically a minimum of one per helideck stairwell and one per fuel system	Locations (describe): Number:		HSAC RP 6.3. NFPA 7.1.
8.3. Are appropriate Materials Data Safety Sheets (Hazardous Material) available?	Jet Fuel (if on facility)?		Industry Practice

Category	Helicopter Overall Length, including both rotors	Min. Rating
H-1	Up to but not including 15.2 meters (50 feet)	4-A:80-B
H-2	From 15.2 meters up to, but not including 24.4 meters (50-80 feet)	10-A:120-B

SUMMARY OF NON COMPLIANCES - Continued on back? ☐Yes

List all non compliances	Recommended Corrective Action
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AREA OF INSPECTION	REMARKS	✔= Sat Rating	Reference and/or Frequency
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