

**Helicopter Safety Enhancement (H-SE) 22A:
Detection and Management of Risk Level Changes During Flight by Pilots and Nonflying Crew**

<p>Safety Enhancement Action:</p>	<p>Outreach: Industry to develop and promote recommended practices for pilot and nonflying crewmembers to (1) detect increased risk levels during the course of a flight, (2) effectively communicate the increased risk level to each other, and (3) make a decision on the appropriate risk mitigation.</p>
<p>Expected Implementers:</p>	<ul style="list-style-type: none"> • Helicopter Association International (HAI) Safety Committee • Helicopter Association International (HAI) Utilities, Patrol, and Construction (UPAC) Committee • Commission on Accreditation of Medical Transport Systems (CAMTS) – Executive Director • Airborne Law Enforcement Association – Safety Program Manager • USHST Outreach Team • USHST Special Emphasis Area (SEA) Training Team • Academia (e.g., UAA, PEGASAS, ERAU) • FAA Safety Team (FAAST)
<p>Statement of Work:</p>	<p>The flight environment is often dynamic, and not every contingency can be anticipated or scripted in advance. The pilot in command (PIC) is ultimately responsible for the safety of a flight; however, non-flying crewmembers have a pivotal responsibility in working with the PIC to ensure safety. When unexpected changes are encountered, it is paramount that the PIC and the non-flying crewmembers quickly detect the elevation of risk, communicate it to each other, and collectively decide on a reasonable resolution or mitigation. This H-SE will work to promote recommended practices for effectiveness at each stage in the process (detection, communication, and decision).</p> <p>Project:</p> <ol style="list-style-type: none"> 1. Gather and review existing research materials on: <ol style="list-style-type: none"> a. How people make decisions in demanding, real world situations (naturalistic decision making). b. Crew resource management for applicability to rotorcraft operations. 2. Apply information from Output 1 to develop recommended practices for identifying changes that present high risks in the helicopter flying environment for both pilot and non-flying crewmembers. Develop educational materials containing

	<p>recommended practices, including recommendations for empowering non-flying crewmembers to recognize changes in the risk level and effectively communicate with the pilot flying.</p> <p>3. Distribute and promote educational materials.</p> <p>The following fatal accidents prompted this safety enhancement:</p> <table> <tr> <td>WPR12MA034</td> <td>WPR10GA097</td> </tr> <tr> <td>WPR12LA259</td> <td>ERA13LA057</td> </tr> <tr> <td>ERA13LA057</td> <td>WPR14LA008</td> </tr> <tr> <td>WPR13GA128</td> <td></td> </tr> </table>	WPR12MA034	WPR10GA097	WPR12LA259	ERA13LA057	ERA13LA057	WPR14LA008	WPR13GA128													
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Relation to Current Aviation Community Initiatives:	<ul style="list-style-type: none"> • FAA SMS Voluntary Program for 135 (and other) Operators • FRAT – Use of Flight Risk Analysis tool (from GAJSC site) • GAJSC Loss of Control Working Group 1, SE-9, Part 135 Safety Culture: Public education campaign on the safety benefits of standard operating procedures (SOP) for 14 CFR 91 positioning legs, flight risk assessment tools (FRAT), and Safety Management Systems (SMS). • Risk Management Handbook (FAA-H-8083-2) Chapter 4-2 http://go.usa.gov/jAJk. • “You Can Take it With You,” FAA Safety Briefing pg. 4, available at http://go.usa.gov/jAuV. 																				
Performance Goal Indicators:	<ul style="list-style-type: none"> • Educational materials developed. • Educational materials distributed and promoted. 																				
Key Milestones:	<table> <thead> <tr> <th></th> <th><u>Total Months</u></th> <th><u>Start Date</u></th> <th><u>End Date</u></th> </tr> </thead> <tbody> <tr> <td>Output 1:</td> <td>12</td> <td>Oct. 1, 2017</td> <td>Oct. 1, 2018</td> </tr> <tr> <td>Output 2:</td> <td>12</td> <td>Oct. 1, 2018</td> <td>Oct. 1, 2019</td> </tr> <tr> <td>Output 3:</td> <td>12</td> <td>Oct. 1, 2019</td> <td>Oct. 1, 2020</td> </tr> <tr> <td>Completion:</td> <td>36 months</td> <td></td> <td></td> </tr> </tbody> </table>		<u>Total Months</u>	<u>Start Date</u>	<u>End Date</u>	Output 1:	12	Oct. 1, 2017	Oct. 1, 2018	Output 2:	12	Oct. 1, 2018	Oct. 1, 2019	Output 3:	12	Oct. 1, 2019	Oct. 1, 2020	Completion:	36 months		
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Completion:	36 months																				
Potential Obstacles:	Challenges of balancing non-flying crew input with PIC responsibility.																				
Detailed Implementation Plan Notes:	Materials should include recommendations on training and mentoring crew to understand and implement the recommended practices.																				
CICTT Code:	UIMC, LALT																				

Output 1:	
Description:	Gather and review existing research materials on: <ul style="list-style-type: none"> a. How people make decisions in demanding, real world situations (naturalistic decision making). b. Crew resource management for applicability to rotorcraft operations.
Lead Organization:	USHST Outreach Team and SEA Training Team
Supporting Organizations:	Academic institutions
Actions:	USHSTs Outreach Team and SEA Training Team to coordinate with academic institutions on gathering and reviewing existing research regarding decision making and crew resource management that may be useful in developing recommended practices.
Output Notes:	
Time Line:	12 months
Target Completion Date:	Oct. 1, 2018
Output 2:	
Description:	Apply information from Output 1 to develop recommended practices for identifying changes that present high risks in the helicopter flying environment for both pilot and non-pilot crewmembers and develop educational materials containing recommended practices, including recommendations for empowering non-flying crewmembers to recognize changes in the risk level and effectively communicate with the pilot flying.
Lead Organization:	USHST Outreach Team and SEA Training Team
Supporting Organizations:	
Actions:	<ol style="list-style-type: none"> 1. USHST Outreach and SEA Training teams to develop recommended practices in coordination with appropriate industry engagement. 2. USHST Outreach and SEA Training teams to develop educational materials for implementing recommended practices.
Output Notes:	Different materials may be produced for different crew roles. Materials should be general but recognize operational variances. To ensure the best possible product, involve specific high risk operators to assist based on their SMS programs or practices (<i>i.e.</i> , EMS, Utility).
Time Line:	12 months

Target Completion Date:	Oct. 1, 2019
Output 3:	
Description:	Distribute and promote educational materials.
Lead Organization:	USHST Outreach Team
Supporting Organizations:	<ul style="list-style-type: none"> • HAI • CAMTS • FAAST
Action:	USHST Outreach Team to develop and execute plan for distribution of educational materials to relevant segments of industry.
Output Notes:	A variety of media and approaches should be considered, including web-based materials as well as in-person presentations.
Time Line:	12 months
Target Completion Date:	Oct. 1, 2020