



H-SE 123

All Hands Brief



**Increased Simulation/Education to Develop
Safe Aeronautical Decision Making**

Nick Mayhew

Wed 31 Mar 2021





The FAA and industry (acting together) is to increase the use of relevant simulation to rehearse at risk scenarios to develop safe (aeronautical) decision making and educate (the industry).



- **WORKING GROUP MEMBERS**

- **Nick Mayhew** - L3Harris (WG Lead)
- **Tom McNamara/Howard Houska** – FAA AFS 205 NSP
- **Jim Ciccone** → **Shawn Hayes** → **Brad Palmer** – FAA AFS 800
- **Randy Gawenda**– Frasca International
- **Andre Lavellee** - AT Systems
- **Prof Dawn Groh**– ERAU
- **Dr Alexia Payan/Kyle Collins** - GIT
- **Erik Feldmanis/David Burchinal** – FSI.
- **Dr Steve Cusick/Dave Behrmann** – FIT
- **Jason Quisling** – Air Methods
- **Jeremy Pinchak** – FAA Tech Center (HF)
- **Craig Zysk** – TRU
- **Dan Doepker** – Hillsboro Aviation Academy
- **Dennis Pierce** – Colorado Heli Ops



21 FATAL ACCIDENTS TO DRIVE THE INITIAL SCENARIOS (+ responsibility shown for scenario development at Annex)

Loss of Control in Flight (LOC-I):

- ERA12MA005
- ERA11FA272
- WPR13FA343
- WPR09FA459
- WPR10FA277
- CEN12FA621
- WPR10FA055
- CEN13FA010

ERAU

Unintended Entry into IMC (UIMC):

- CEN09PA348
- ERA09FA537
- CEN10FA019
- ERA10FA403
- CEN10FA509
- CEN11FA468
- ERA12MA122
- ERA13FA014
- CEN13FA096
- ANC13GA036
- ERA13FA273
- ERA13FA336

FIT
now
GIT

GIT

Low Altitude (LALT):

- ERA13LA057
- ERA10FA283 (H-SE 75)



RELATED INITIATIVES

- **USHST TWG Position Paper 12 July 2016**, Safety Through Helicopter Simulation; Recommendations by the Training Working Group for actions to improve the use of helicopter simulators and enhance safety. Submitted to the FAA AFS 800, Aug 2016.
<http://www.ihst.org/portals/54/repository/Simulation%20Position%20Paper%20July%202016%20Final.pdf>
- **NTSB Safety Alert: Safety Through Helicopter Simulators - Use of simulators can prepare helicopter pilots for emergencies and prevent accidents:**
https://www.nts.gov/safety/safetyalerts/Documents/SA_031.pdf
<https://www.youtube.com/watch?v=r8TgM3oP98U>
- **Airmanship Education Research Initiative (AERI) Study** – Dr. Bill Rhodes PhD. DoD, DARPA, USAF Academy: 108 participants (Pvt to ATP), 2 Scenarios (VFR into IMC, Fuel Leak), 2 FTDs, 2 Groups, FAA ADM & Trustworthy Pilot on-line courses in between. Pilots with good ADM skills performed well in both scenarios. Pilots who made ADM errors in first scenario were significantly reduced in second scenario and they learned from their mistakes.
- Use additional research available to validate changes of in-flight behavior (e.g., LOSA initiative: AC 120-90).



H-SE 123 KEY MILESTONES			
Activity	Total Months	Start Date	End Date
OUTPUT 1	2	1-Mar-18	1-May-18
100% Complete			
OUTPUT 2	36	1-May-18	1-May-21
95% Complete			
OUTPUT 3	36	1-May-18	1-May-21
95% Complete			
Total	38	1-Mar-18	1-May-21



OUTPUT 1

- Review current guidance and oversight of all helicopter simulation
- Gather the team
- Liaise with FAA ARAC ACS WG
- Leverage off PEGASAS Project 30 to identify synergies and promote Scenario Based Training (SBT) simulator use
- Created 30 Second 4 Safety video promoting SBT in simulation.
- Meeting schedule; monthly web conference calls

OUTPUT 1 COMPLETE



OUTPUT 2/3

- Draft and submit to the FAA an Advisory Circular (AC) for issue to identify the initial set of scenarios with lesson plans, based upon the USHST fatal accident data that should be encouraged for use as scenarios in simulated
- Issue Press Releases and further social/media promotion on the value of the AC/Recommended Practices (RP) document
- ERAU and GIT develop scenarios from 21 fatal accidents for AC Annex
- Present on H-SE 123 related subjects during Rotor Safety Challenge at Heli Expo 19 (Atlanta) and Heli Expo 20 (Anaheim)
- H-SE 123 Article for Air Beat Magazine Feb 19 issue
- To partially meet H-SE 75 (Technology to Prevent Unintended Loss of Engine Power) with a training element, added NTSB fatal accident ERA10FA283 (rapid throttle reduction or “chop”) to the AC scenarios.

OUTPUT 2/3

- Submitted draft AC to FAA 19 Jun 2019.
- FAA DCB and Legal changes affecting processing of AC.
- Published contents of AC as USHST Recommended Practice (RP) 27 Apr 2020 ahead of AC to enable industry to leverage off the H-SE initiative.
- 5 min video to be published by 1 May 2021.



