

# REDAC Subcommittee on Human Factors Winter/Spring 2021 | MINUTES

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Meeting date | *March 23-25, 2021*

Meeting location | *Remote (In-Person meeting cancelled due to COVID-19)*

Purpose: Review the RE&D proposed requirements for fiscal year 2023

Minutes from meeting:

**Tuesday, March 23<sup>rd</sup>, 2021**

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**Welcome / Introductions | Presenters** *Dr. Barbara Holder, HF Subcommittee Chair, Dr. Bill Kaliardos, Designated Federal Official (DFO)*

Drs. Bill Kaliardos and Barbara Holder welcomed the subcommittee and opened the floor for introductions. The committee members introduced themselves. The DFO reviewed the agenda and the meeting was called to order.

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**Update from Full Committee Meeting | Presenter** *Dr. Barbara Holder*

Dr. Barbara Holder began briefing introductory slides. She provided an update from the Full REDAC Meeting. She then explained the function of the REDAC as well as the various goals of the HF REDAC subcommittee meeting.

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**REDAC Mission & Opening Remarks | Presenter** *Shelly Yak, FAA Director of William J. Hughes Technical Center, REDAC Co-Chair*

Shelly Yak presented the Research Landscape update and COVID-19 research impacts in her introductory remarks. These were well received. There were some questions, such as if the landscape was vetted with rest of FAA (answer was that it has been socialized with various groups). One slide showed the notional process of how the landscape and other planning documents were used to help inform FAA research, and how REDAC and other feedback helps correct the course of the plans.

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**Memorandum of Agreement (MOA) Between the Office of Aviation Safety and the Office of NextGen for Aviation Safety Research (AVS) and Development (W/S 2020 F&R #3) | Presenters** *Mark Orr, FAA Aviation Safety Research & Development, Mike Paglione, Eric Neiderman, FAA Aviation Research*

Mark Orr and Mike Paglione provided an overview of the recent update to the AVS research coordination process. The overview provided a notional example of how the new process is put into use. The subcommittee members requested an example case be presented at the next meeting.

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**Break**

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**Aviation Industry Direction and Challenges / Emerging Issues | Presenter *All***

In the emerging issues discussion by the HF Subcommittee, Chris DeSenti mentioned that shares of ecommerce in the United States as a case for how important air cargo delivery might be. Also, the importance of spectrum, as indicated by a recent record sale. Cheryl Quinn mentioned that we need to think beyond aircraft certification, into operations. Barbara expressed concern about the drive towards part 135 single pilot cargo ops at limited airports, which OEMs are asking for, with high demand for simplified flight decks. Monitoring for fatigue might be important.

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**Possible Changes to Industry as a Result of COVID-19 | Presenter *All***

In the discussion on COVID-19 impacts by the HF Subcommittee, Chris DeSenti discussed data on airline ops during the pandemic, including the distribution of aircraft passenger loading (passengers), which has roughly a 50% average, with distributions well towards 0 and 100%. Cheryl mentioned that COVID-19 will impact NASA projects (e.g., ability to schedule flights close together), but they still are marching forward. Dave McKenney highlighted the importance of the user needs and decisions drive the technologies, and not vice versa. Jack Barker asked what the requirements are for zoom learning to be successful, compared to in-person. Steve Lang identified that traffic is about 1/3 now, which makes it hard to study certain topics. Maggie Ma said there has been a workforce reduction in aircraft maintenance, with many layoffs, which has resulted in younger technicians being laid off first, and older technicians stepping up to work the graveyard shifts and other more stressful work that they are not accustomed to. Remote training is also a question, regarding effectiveness.

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**Briefing on International Civil Aviation Organization (ICAO) *Manual on Human Performance for Regulators (Doc 10151)* | Presenter *Michelle Millar, ICAO (International Civil Aviation Organization)***

Michelle Millar presented an overview of the ICAO Human Performance Manual for Regulators.

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**FAA Budget Update | Presenter *Elizabeth Delarosby, FAA RED Budget Analyst, Manager***

Elizabeth Delarosby presented an FAA budget overview.

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**End of Day 1 Session**

**Wednesday, March 24<sup>th</sup>, 2021**

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**FAA Flight Deck & ATC Human Factors Briefings | Presenter *FAA HF Budget Line Item (BLI) Managers***

The FAA (ANG-C1) presented their four HF research portfolios. Presenters were Dr. Victor Quach, Dr. Chuck Perala, Dan Herschler, and Karl Kaufmann.

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**FAA Human Factors and Systems Safety Activities Related to the Aircraft Certification, Safety, and Accountability Legislation | Presenter *Dr. Kathy Abbott, FAA Chief Scientific and Technical Advisor for Flight Deck Human Factors***

Dr. Kathy Abbott presented an overview of recent congressional legislation related to HF and system safety research and application.

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**Break**

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**Air Traffic Operator feedback for improved learning across facilities (S/F 2020 F&R#1) | Presenter *All***

This discussion included invited guests. Two facility (ATCSCC) reps included one recently from AJI, and one being the AJR rep for Trajectory Based Ops (TBO). Other guests included researchers from the Tech Center and MITRE, who have been addressing TBO impacts on Traffic Management. An AJO rep was also present.

Consensus was that this is a valid need (to improve it), and for multiple reasons (real time and longer-term performance feedback, short/long term training, etc.). Every facility can benefit, and currently does it differently, and we should standardize. Who needs it, and the time frame, and how to standardize, are important questions.

Current research is looking at best practices, which can lead to training. For example, where to move an aircraft prior to freeze horizon. The FAA currently has research related to this topic, and as this progresses, we can get partial answers to the gaps and opportunities. AJR mentioned that this Finding and Recommendation (F&R) is always a concern, in addition to the TBO-relevant feedback. Air Traffic Operations (ATO), AJO mentioned that current training is on how to operate the equipment, and not the culture. Others mentioned that what pilots want and what controllers want can be different (e.g., “direct-to”, which can be for various reasons such as being in a hurry, or from ability to see weather systems that ATC can’t see), and that it is important to ask how we get stakeholders on the same page. Joint ATC-Flight Deck perspectives are important. For example, aircraft sometimes get delayed, yet show up as the only aircraft at the airport. Trust and collaboration, such as with AOCs and between facilities, is important. One member said the FAA has responded well to this F&R, but we still need to move quickly on this.

**End of Day 2 Session**

**Thursday, March 25<sup>th</sup>, 2021**

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**Workforce proficiency and time away from work—air and ground (S/F 2020 F&R #2) | Presenter *All***

This discussion had multiple invited guests, including two from AVS-AFS and one from AJO.

For pilots, a member expressed concern that the 90-day rule has been there a long time, and tasks have changed. AFS initially said the current requirements are robust, although does not know the research that the current structure is based upon. AFS said they would usually see a full requalification after long periods such as health issues. There was discussion about the need to better understand the subtleties about proficiency, and we have opportunities to look at more granular data, such as through AQP, although it wasn't designed for that. A member expressed concern that although a pilot might pass [qualification], it is harder to understand the subtleties of cognitive tasks versus psychomotor tasks. AFS also mentioned a concern with shorter times away (as in cargo ops), and how the current system can be gamed to do the minimum. The part 24 carriers could be sampled to get an idea. A member asked how we can get a more granular view that can also be standardized, and consider what we are currently NOT measuring.

For the ATC discussion, an AJO rep said he mirrors what AFS said. If you go 30 days, you don't get recertified, but you get over-the-shoulder approval. More requirements for longer periods. There was mention that one can have all the qualifications, but not the proficiency that operators feel comfortable with, and that currently has to be detected if not self-reported.

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**Update on Urban/Advanced Air Mobility HF-related Research (W/S 2020 F&R #1) | Presenter *All***

For the Advanced Air Mobility (AAM) discussion (from prior F&R), there is still concern that FAA HF is not doing enough, soon enough. Currently there are no firm plans to fund AAM research though HF. However, AAM research is occurring outside of HF, and sometimes related to HF

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**Break**

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**Unmanned Aircraft System Traffic Management (UTM) Human Factors & Discussion on Future AAM HF Research | Presenter *Lynne Martin, NASA Ames***

Lynne Martin (NASA) presented on UTM HF, based on a recent paper published through the Digital Avionics Systems Conference (DASC). The research was based on an unusually large amount of flights and data, with varying degrees of operational complexity.

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**Subcommittee Discussion on FAA Research & Homework Assignments | Presenter *All***

The day concluded with a Finding & Recommendation (F&R) discussion.

**End of Meeting**

**Agenda:**

**DAY 1 – Tuesday, March 23, 2021**

<b>Time</b>	<b>Topic</b>	<b>Presenter</b>
12:00 – 12:30 ET	Welcome / Introductions	<b>Barbara Holder</b> , Honeywell, HF Subcommittee Chair; <b>Bill Kaliardos</b> , FAA Designated Federal Official (DFO)
	Update from Full Committee Meeting	<b>Barbara Holder</b> , HF Subcommittee Chair
	REDAC Mission & Opening Remarks	<b>Shelley Yak</b> , FAA Director of William J. Hughes Technical Center, REDAC Co-Chair
12:30 – 13:00 ET	Opening interactive discussion	<b>All</b>
13:00 – 13:30 ET	Memorandum of Agreement (MOA) Between the Office of Aviation Safety and the Office of NextGen for Aviation Safety Research and Development (W/S 2020 F&R #3)	<b>Mark Orr</b> , FAA Aviation Safety Research & Development <b>Mike Paglione, Eric Neiderman</b> FAA, Aviation Research
13:30 – 13:45 ET	<b>Break</b>	
13:45 – 14:15 ET	Aviation Industry Direction and Challenges / Emerging Issues	<b>All</b>
14:15 – 14:30 ET	Possible Changes to Industry as a Result of COVID-19	<b>All</b>
14:30 – 14:45 ET	Briefing on International Civil Aviation Organization (ICAO) <i>Manual on Human Performance for Regulators</i> (Doc 10151)	<b>Michelle Millar</b> , ICAO (International Civil Aviation Organization)
14:45 – 15:00 ET	FAA Budget Update	<b>Elizabeth Delarosby</b> , FAA RED Budget Analyst, Manager
15:00 ET	<b>End of Day 1 Session</b>	

**DAY 2 – Wednesday, March 24, 2021**

<b>Time</b>	<b>Topic</b>	<b>Presenter</b>
12:00 – 12:45 ET	Flight Deck HF Research, NextGen	<b>Victor Quach</b> , FAA Flight Deck NextGen HF Portfolio Manager
	Flight Deck HF Research, Core	<b>Chuck Perala</b> , FAA Flight Deck Core HF Portfolio Manager

<b>Time</b>	<b>Topic</b>	<b>Presenter</b>
12:45 – 13:15 ET	FAA Human Factors and Systems Safety Activities Related to the Aircraft Certification, Safety, and Accountability Legislation	<b>Kathy Abbott</b> , FAA Chief Scientific and Technical Advisor for Flight Deck Human Factors
13:15 – 13:30 ET	<b>Break</b>	
13:30 – 14:00 ET	FAA ATC HF Research, NextGen	<b>Karl Kaufmann</b> , FAA ATC Enterprise HF Portfolio Manager
	FAA ATC HF Research, Core	<b>Dan Herschler</b> , FAA ATC Core HF Portfolio Manager
14:00 – 14:30 ET	Air Traffic Operator feedback for improved learning across facilities (S/F 2020 F&R #1)	<b>All</b>
14:30 – 15:00 ET	Subcommittee Discussion on FAA Research	<b>All</b>
	Homework Assignments	
15:00 ET	<b>End of Day 2 Session</b>	

**DAY 3 – Thursday, March 25, 2021**

<b>Time</b>	<b>Topic</b>	<b>Presenter</b>
12:00 – 12:45 ET	Workforce proficiency and time away from work—air and ground (S/F 2020 F&R #2)	<b>All</b>
12:45 – 13:00 ET	Update on Urban/Advanced Air Mobility (AAM) HF-related Research (W/S 2020 F&R #1)	<b>All</b>
13:00 – 13:15 ET	Placeholder (TBD)	
13:15 – 13:30 ET	<b>Break</b>	
13:30 – 14:00 ET	Unmanned Aircraft System Traffic Management (UTM) Human Factors	<b>Lynne Martin</b> , NASA Ames
	Discussion on Future AAM HF Research	
14:00 – 15:00 ET	HF Subcommittee F&R Discussions	<b>All</b>
15:00 ET	<b>Meeting Adjourned</b>	

\*F&R = Finding and Recommendation by REDAC

**Attendees List:**

Number	Name
1	CA Roundtree-Coleman
2	Bill Kaliardos
3	Barbara Holder
4	Evan Harvey
5	Chris DeSenti
6	Dave McKenney
7	Paul Murdock
8	Aaron Katz
9	Abigail Pasmore
10	Adam Rhodes
11	Alexis J. Jones
12	Andrew Cheng
13	Angel Millan
14	Ben Willems
15	Beth Delarosby
16	Caprice Brown
17	Carl Berntsen
18	Carla Hackworth
19	Carolina Zingale
20	Chandra Smith
21	Charles Tang
22	Cheryl Quinn
23	Chris Reed
24	Christopher Cooper
25	Chuck Perala
26	Colleen Donovan
27	Dan Brock
28	Dan Herschler

29	Doneliya Deneva
30	Doug Rodzon
31	Eddie Austrian
32	Elly Smith
33	Ian Johnson
34	Jack Barker
35	Jason Demagalski
36	Jeff Dressel
37	Joey Jaworski
38	Kim Cardosi
39	John Hansman
40	Jon Schleifer
41	Jonathan Archer
42	Joseph Keller
43	Karl Kauffman
44	Kathy Abbott
45	Kenneth Allendoerfer
46	Kevin Comstock
47	Kevin Williams
48	Maggie Ma
49	Mark Orr
50	Marlo Allen
51	Maura Lohrenz
52	Mike Paglione
53	Phil Bassett
54	Rachel Seely
55	Rany Azzi
56	Carrie Bell
57	Rich Golden
58	Phil Smith

59	Shelley Yak
60	Stephanie Kreseen
61	Steve Lang
62	Tara Holmes
63	Todd Truitt
64	Tracy Lennertz
65	Keith Ruskin
66	Victor Quach
67	Aaron Katch
68	Cathy Swider
70	Divya Chandra
71	Jon Chleifer
72	Kenneth Allendoerfer
73	Stephaine Kreseen
74	Tracy Lennartz
75	Vicki Ahlstrom
76	Andrea Sparko
77	Chad Wakefield
78	Tony Price
79	Steve Osbourne
80	Steven Estes
81	Tanya Yuditsky
82	Kelvin L. Courtney
83	Rob Burke
84	Al Secen
85	Beth Lyall-Wilson
86	Jessica Nowinski
87	Kelley J. Krokos
88	Terry King
89	Paul Tursi
90	Lowell Foster