

Subcommittee on Human Factors SPRING 2015 | MINUTES

Meeting date | *February 24 – 26, 2015*

Meeting location | *Tec Edge, 5000 Springfield St. Suite 100 Dayton OH 45431*

Purpose: Human Factors Guidance for FY 2017 & Research Portfolio

February 24, 2015 (Subcommittee Meeting on Human Factors)

Jack Blackhurst and Sherry Chappell welcomed the Subcommittee members.

Jaime Figueroa introduced himself from the Management Services Office (ANG-A).

Jaime briefed that Dennis Filler wants to leverage the Top 5 issues and sees them a good starting point for discussions on research direction and resources. The right researchers are aligned and ANG is going in the right direction but need to identify new emphasis.

Presentation Budget Update | Presenter *Mike Gallivan*

Mike Gallivan, Manager of R,E&D Financial Management, reviewed the RE&D FY15 and FY16 budget status and portfolio and out year targets. In FY15, the FAA received appropriation of \$156.750M. The request for FY16 is \$166M and FY17 is \$169M. House had significant cuts to Flight deck Human Factors and Weather Program and added funds to UAS and NextGen Environment & Energy. Senate had small cuts but to more programs with \$6m added to UAS and \$2.5M to NextGen Environment & Energy Conference went with the Senate proposal. The current FAA authorization runs through FY 2015. The FAA has started work on its proposed reauthorization bill that will have to go thru OST and OMB. The scheduled date of the FY17 Congressional Request is February 1, 2016.

The subcommittee discussed the percent of the budget being spent on research and whether NASA research should count as a benefit.

The subcommittee agreed to use the framework from Rachel's brief and continue to update it.

Mike Gallivan will send to Jaime Figueroa and Rachel Seely the HF FY14, FY15 and FY16 budgets.

Presentation Welcome and review of activities against last REDAC findings | Presenter *Rachel Seely*

Rachel presented on further definition of the degree to which research is addressing the report items. The top areas identified by the Subcommittee in Summer 2014:

- System Information Management
- Automation/Autonomy Roles and Responsibilities
- Integration of UAS/RPAS into the NAS
- Dealing with Mixed Equipage Operations in the Design and Evolution of the NAS
- Human Machine Design, Integration, and Certification
- Workforce Selection, Training, and Proficiency

The subcommittee discussed the role of the committee & the sponsors and role of NASA vs. FAA research.

Rachel Seely discussed the importance of identifying and addressing research areas by mapping to existing research and evaluating gaps where they exist. The next steps are, while listening to the research briefs, begin dialog on how the research topics are addressed and discuss how to approach the research topics that are not covered.

Presentation Flight Deck FY2017 Requirements Briefing: Core Program | **Presenter** *Kathy Abbott*

Kathy Abbott presented on Flight Deck/Maintenance/System Integration Human Factors, FY14-FY17 Core Flight Deck Research requirements and discussed the importance of human performance. Kathy reviewed organizations, government, industry, and university, other labs, and partnerships under NextGen Flight Deck Human Factors Program Capabilities. Kathy explained that sometimes the automation doesn't keep the pilot informed, or the pilot doesn't get sufficient practice.

A11.G.HF.4 - FY15 is in discussion and is affected by the cut. Some of the work on lighting and airport infrastructure issues needs to be discussed - covered mainly by airports. We have some work in NextGen LVO SMGCS that is relevant. The seminar last December took place to discuss LED lighting and implications. This is broader than this activity.

A11G.HF.8 - Program starts next year. Mark will discuss further in his F&R on new regulation fatigue risk management systems. This addresses flight in duty time and flight crew member fatigue and how effective are the systems that carriers are applying to address certification. Impact of new regulation on airlines has been huge. Need objective basis. Safety benefit must be commensurate with what we have asked people to do.

A11G.HF.10 - Several areas to address maintenance safety culture. This is a new requirement to start in FY17.

A11L.UAS.42 – Working with UAS TCRG on UAS HF Control Station Design Standards in FY17. UAS HF requirements are coming from the UAS TCRG and are being managed by the UAS office, not ANG-C1.

The subcommittee discussed the effects of LED runway & taxiway lighting on enhanced vision systems, center of excellence requirement for the funded organization to provide a 100% match of funds – the FAA does not make this policy, and RTCA Subcommittee 233 to address 25.1302 and how this relates to the HF General Guidance Document.

Presentation Flight Deck FY2017 Requirements Briefing: NextGen Program Strategy |

Presenter *Kathy Abbott*

Kathy Abbott presented on NextGen Flight Deck Human Factors Program and discussed NextGen Complex Systems and Human Error. Kathy Abbott explained that there is somewhat of an understanding of how flight crew tasks evolve with NextGen. Not sure how pilot tasks change with PEDs but believed some have a good understanding, but need to research. Airlines are changing the way they teach automation levels e.g. difference between guidance and control. Procedures are being developed by type of automation available. Control vs. Command would impact the procedures.

Jack Blackhurst explained that the Air Force has a single pilot controlling multiple UASs in a transport operation, but not tactical.

NextGen: Human Factors Guidelines for advanced instrument procedure design and use RNAV pilot compliance is an issue. This work supports updates to the FAA order on airspace procedure design criteria. What makes a procedure complex is messier than thought out. Output was a PARC project. They are directly included in the guidance from the FAA.

Kathy Abbott briefed that there is a desire to update guidance but not sure how to baseline the level of automation. Automation adds new tasks for monitoring in addition to the tasks that are replaced by the automation. Need to acknowledge that when you automate a function, you are not removing responsibilities for actions by the flightcrew. There is no scan pattern being taught today and how to spread your attention. This can use some help in training.

NextGen: Flight deck systems; flight crew interfaces, installation, integration and operations. A lot of input from Cathy Swider comes from this requirement

NextGen: DataComm Human Factors - Global level, supporting ICAO panel on datalink integration challenges.

The subcommittee discussed that social media can be a potential solution for the GA community, EASA is going through changes with 25.1302 and we will need to coordinate, and what the safety risks with each generation of aircraft are. Discussed skill loss and evidence-based training; cockpits identified by generation like the iPhone 5 are useful but not sufficient. Other discussions followed that the FAA is looking at how to characterize the difference between Airbus and Boeing and Advisory VNAV vs. Coupled VNAV.

Kathy Abbott explained that there were explicit discussions on this topic for UAS ground stations but we are not close enough to understanding the differences. They haven't done enough with UAS. Very little consideration on what should be borrowed from manual flight deck. It is an unconstrained problem. UAS control stations are being built that don't have stick and rudder control, however controlling UAS still requires the cognitive aspects of manual flight. There was an F&R discussion regarding the lack of research requirements for flight deck complexity for UAS control stations.

The subcommittee discussed what differentiates a core vs. NextGen program, whether the procedure/equipment is needed for NextGen operations, and accelerating the UAS detect and avoid research to start sooner than FY17. Currently no HF work is going on for UAS ground/airport surface ops.

The subcommittee discussed whether the Flight Deck Core and NextGen research is covering Parts 23, 25, 27, & 29. Little work has been done on Part 23. In FY15 rotorcraft research fell below the funding priorities. The GA Joint Steering Committee (GAJSC, GA counterpart to CAST) is getting started and may bring some focus to GA. Angle of attack work is targeted at Part 23.

Note that the budget line items (BLIs) are associated with a particular TCRG, but the REDAC subcommittees are looking across TCRGs & BLIs and focusing on the topic area, e.g., HF.

Presentation F&R for NextGen Flight Deck| Presenter Mark Orr

Mark Orr presented on the AVS RE&D Process, Strategic Guidance, Continual Improvement and Vision for Fall_2013_30 F&R and FRMS activities and planned research for Spring_2014_09 F&R.

Mark Orr explained that there needs to be a better guidance on how to put in research requests.

Mark Orr discussed strategic guidance that was provided to the sponsors. Try to give sponsors the bigger picture and provide focused safety hazard and risk data to the research sponsoring office - not a checklist. This is intended to provide some examples that may drive research and support SMS.

Mark Orr explained that there was much discussion about the lack of a mechanism or process for HF input to sponsors who may not be aware that they need HF research. Research plans are done 3 years out and tend to be single-year focused, as opposed to a continuing research program. Process starts early April to get strategic guidance for the 3-yr out plan. Need data from ASIAs to determine priorities.

Jack Blackhurst wanted more information on the transparency of the process and recommended some tweaking. It looks like very good makings for an effective process.

The subcommittee agreed on the closure of recommendation Fall_2013_30 AVS RE&D process and Spring_2014_09 Fatigue Risk Management - developing the database to do the research.

Presentation Where human factors are in AVS | **Presenter** *Kathy Abbott*

Action Item #10 from Summer 2014 list. The action item was assigned to Kathy Abbott to provide briefing on where human factors is in AVS and explain how human factors gets incorporated as new technologies go through AVS.

The subcommittee discussed that the FAA could sponsor the SOP research out of flight standards.

Action Item closed. Four new action items were identified and assigned.

Presentation Operational Use of Flight Path Management Systems | **Presenter** *Kathy Abbott*

This Presentation is for Action Item #30 from Summer 2014 list.

Kathy Abbott presented the status of Recommendations of the Performance-Based Operations Aviation Rulemaking Committee (PARC)/ Commercial Aviation Safety Team (CAST) Flight Deck Automation Working Group.

Kathy Abbott briefed that there are 18 recommendations with activity on most recommendations and are developing Action Plans for specific recommendations. Recommendations are interdependent in some cases and many of the recommendations support work that is already underway. There are no new rulemakings recommended. Recommendations should be communicated and implemented/harmonized internationally.

Action Item closed.

February 25, 2015

Review of Previous Day – Findings and Recommendations Discussion

Jack Blackhurst drafted and presented two new F&R.

Finding:

The HF subcommittee was very pleased to see the FAA Human Factors committee using the list of top HF issues identified by the HF Subcommittee in Summer 2015 and assessing their portfolio against these issues. We believe these issues could serve as a framework for identifying gaps as well as a spring board for new research. We also applaud CAMI taking the initiative to map their programs against the list to identify other areas that might be high priority for CAMI to address.

Recommendation:

Incorporate the top HF issues into the FAA R&D planning process and report progress at future HF subcommittee. Consider this framework for the remaining subcommittees. Communicate to sponsors and strategic planners that these “top down” strategic priorities are seen by the committee as critical to understand and address as soon as possible: The fact that they are labeled as priorities for 10+ years out does not mean that they are not relevant today or that research on these topics can wait to start without impact.

Finding:

The HF subcommittee is concerned that UAS HF research is not receiving the appropriate priority in research programs. Even though there is current and planned research on UAS ground station design, we are concerned that it is insufficient and will result in being late to address future regulatory and standardization needs.

Recommendation:

The FAA review its UAS research portfolio to ensure it is sufficiently funded and timely to need and contains the appropriate research to address operator stations and terminal operations. Recommend this be a focus area for upcoming HF subcommittee meetings. The committee also recommends that the Human Factors work for UAS identified as part of the “larger than requested” FY 2015 UAS systems research budget be closely coordinated with ANG C1 and the REDAC HF subcommittees’ strategic priority called “Integration of UAS/RPAS into the NAS,” identified at the Summer, 2014 meeting.

Presentation Clarification on UAS Human Factors Research | **Presenter** *Bill Kaliardos and Stephen Plishka*

Bill Kaliardos (ANG-C1) presented clarification on UAS Human Factors Research for REDAC HF Subcommittee:

1. Whether the focus is UAS requirements for operating in the NAS or NAS requirements for accommodating UAS’s
2. Specific areas of research related to ground control stations
3. How the outputs/deliverables will be used (ANG-C1 to Coordinate)

The subcommittee discussed the following:

- It would be helpful to capture what is actually different and derive the differences in ATC workload and the ATC instructions that a UAS won't be able to comply with.
- There is Human Factor for small UAS but not a big pull for UAS and UAS startups that may not have aviation background.
- Not focusing on ground operations for UAS due to the mitigations available. Looking at the DoD ground ops mitigations and may have some key issues when begin to have large volumes of UASs. Mitigations include towing aircraft to end of runway and rotorcraft takeoff from non-standard locations. Hopefully NASA and DoD can look into this.
- There has been some work looking at the current regulations and standards from manned aircraft to see what can be directly applied, what partial coverage is, and what are the gaps.
- Re-defining the priorities to look at pressing issues and try to get ahead of development, e.g., for control stations. The Control Station is part of the system for certifying the UAS. It would go through the local certification office and there is sufficient support because a lot of the analyses have been done.
- Not looking at fully automated UAS operations.
- The FAA is waiting for someone to come forward to be certified while the industry is clamoring for FAA to put out guidance. Apparently, there are a lot of the folks who are clamoring but don't know anything about how aviation certification works.
- Need RTCA with industry collaboration to determine what additional specific research needs to be done.

Bill Kaliardos briefed that Jim Williams, head of the UAS Integration Office, is the official sponsor for any UAS research.

Bill Kaliardos took the action to identify the implementation plan for UAS.

The subcommittee agreed to revise the recommendation.

Presentation HF R&D Strategy | **Presenter** *Rachel Seely*

Rachel Seely presented the research strategy and where we are headed:

- Build on existing research requirements processes to continuously improve how we identify and execute research requirements
- Work closely with sponsors to get the most out of AVS and R2D2 research requirements process
- Identify new funds to support quick turnaround, near term research needs

Rachel discussed there is a need of more focus on career development and address Inter-Agency details, how to ensure info sharing about activities.

Presentation Interrelationship between C1 / E25/ AAM-500 | **Presenter** *Rachel Seely, Kenneth Allendoerfer and Carla Hackworth*

Rachel Seely presented small and big things that can help strengthen working together.

- Big Things
 - FY15 LOEA for NextGen ATC projects = \$1.4 million
 - Research collaborations with CAMI
 - Attendance and participation at HFCC, R2D2, and REDAC
- Small Things
 - Attend each other's staff meetings
 - Bring requests for support from ATO/AVS to each other
 - Share equipment and technical capabilities
 - Share website development personnel and resources

Jack Blackhurst suggested going to conferences such as UAVSI and discuss professional development.

Action Item closed.

Presentation WITC Program | **Presenter** *Gary Pokodner*

Gary Pokodner presented the Weather Technology in the Cockpit (WTIC) program overview with an excerpt of the WTIC Minimum Weather Service Gap Tracking Worksheet. Gary explained that there is no WTIC involvement with UAV. ANG-C6 has no UAV work.

The subcommittee agreed to close the recommendation.

Presentation AAM-500 Overview | **Presenter** *Carla Hackworth*

Carla Hackworth, Acting Division Manager for AAM-500 CAMI, presented on some of the work they have going on in the different areas covered in the last meeting as key topics.

The subcommittee discussed whether there was a new role for controllers that needs to be defined, consider adding aerospace medicine to the committee - was added to SAS and Space - LOB in commercial space.

Dennis wanted the subcommittee to also look at Cyber, commercial space, and UAS.

Presentation FY 2017 Strategic ATC/Technical Operations Core Research Directions | **Presenter** *Dino Piccione*

Dino Piccione (ANG-C1) presented ATC/Technical Operations Human Factors Research Program for FY 2017. The presentation covered overview of the FY2017 program plan, why is the program necessary, funding history and future, benefits, and background of prior research accomplishments and products.

The subcommittee discussed:

- No plans to change the size of the workforce and thus little work is being done in that area

- The workshop for controllers on Human Performance
- Whether there will be the same number of controllers needed in the future as NextGen gets further implemented
- How to proliferate the training standards out across the NAS. The rest of the NAS facilities are watching but not ready to take on the performance standards developed for NY. It is a prototype and will be tracked through the process and if it is successful, then expect some proliferation. COO of ATO has endorsed. The management of NY TRACON is the official sponsor.
- Working on new BLI that will not focus on HF research, but the impact on training effectiveness

Jaime offered his help getting the new BLI off the ground with Dennis

Presentation FY 2017 NextGen Strategic ATC Controller Efficiency Research Directions |
Presenter *Jerome Lard*

Jerome (ANG-C1) presented ATC/Technical Operations Human Factors Research Program. The presentation covered ongoing activities, planned FY15-16 activities, proposed FY15-16 activities, overview of the FY2017 HF ATC/TechOps program under NextGen Portfolios, why is the 2017 program needed, outcomes of 2017 plan, benefits of 2017 plan and overall budget and plan.

Jerome briefed that due to lack of support, HF NextGen ATC/Tech Ops does not have the ability to influence the roll-out of some of the NextGen implementation.

The subcommittee discussed:

- Problems with implementation of the performance-based navigation (PBN) procedures in terms of HF integration in safety and efficiency.
- Remote towers – is the subcommittee leveraging existing research
- Tech ops work will be going away

February 26, 2015

Review of Previous Day – Findings and Recommendations Discussion

The Subcommittees discussed the drafted F&R write up from Alan Jacobsen and Phil Smith.

Presentation ATO Safety | Presenter Jason Demagalski

Jason Demagalski, Human Factors and Fatigue Risk Manager from ATO Safety and Technical Training (AJI-15), presented on AJI-155 Human Factors and Fatigue Risk Management Team and ATO FRM Program.

Jason reviewed the limits to tech ops work force where there was recommended guidance, and is now a formal agreement with PASS and defining safety assurance measuring techniques. ICAO updating annex 11 where fatigue SARPs were contained. Rules will be implemented by 2020. ATO already complies with 98% of the rules and guidance scheduled to complete later this year. Regulator and ANSPs will have that by end of the year so they have time to come into compliance. The team is looking to create a regulator manual to cover any regulation activities in this area. Bring in air traffic and flight and duty personnel to review manual to make sure it works as a generic regulator manual because most organizations have prescriptive rules on duty time and rest. An organization can petition to operate outside of those rules using FRMS.

Fully charged campaign was launched to support the need for more and better information in our workforce. The team looks at studies and ATSAP and then completes a monthly FRM content for national telcons. The ATO alertness application will be demonstrated next week at Communicating for Safety Conference. This application enables someone to identify chronotype (morning or evening person) and what their sleep need is, and whether they are carrying a sleep debt. It helps the team come up with plan for improving sleep. Decided to accept the low fatiguing but not the very high and limit the very high fatigue schedules. Union issues prevent using Fitbit or anything like that - collecting and storing too much data.

Action Item closed.

Committee Operations Discussion

- The Subcommittee identified the week of August 31st (9/01-9/03) for the Summer Human Factors Subcommittee Summer 2015 meeting. The location is in Washington, DC.
- The Subcommittee agreed to set up a call with REDAC to review a second pass on the top 5 issues.
- The Subcommittee agreed to identify time to do the full second pass review with CAMI and Tech Center.

Findings and Recommendations and Action Item Discussion

- **F&R - Flight Deck FY17 (Kathy Abbott)**
The subcommittee discussed whether it is more effective to address fewer research topics and put more money to them rather than partially funding more research topics. They

also discussed how prioritize the work. Is there anything that can be done to assure that HF continues to be involved in UAS when the money stops going through our office?

The subcommittee discussed updates of HF consideration document and coordination, the changes of 25-1302 more systematic and rigorous, biggest impact to smaller OEMs and Av manufactures is taken seriously even when it is business as usual. It is more rigorous in documentation, evaluation, and design.

No F&R or action was assigned.

- **F&R - NextGen Flight Deck (Kathy Abbott)**

Kathy Abbott updated that UAS ground stations research may not be happening quickly enough because they are working on funding. Regarding the RTCA minimum ops performance, there needs to be a group where there is someone who can use outputs and have the non-human factors community to lay out need. In the FAA, they haven't made it a sponsor priority or may not realize that HF research needs to go in to guidance.

No F&R or action was assigned.

- **F&R - ATC/Tech Ops BLIs**

The subcommittee discussed the risks associated with not doing the human-system integration work. Increased training leads to recurring labor costs.

- **F&R - FY 2017 Strategic ATC/Technical Operations Core Research (Dino Piccione)**

The subcommittee discussed what the committee can/should do from a research perspective. Show the impact the N90 training has on the larger budgets, ask the FAA to say where the selection work is happening and where is the other research performed that was performed under the core BLI or institutionalize the approach to human performance and safety. There is a need to deal with NATCA and sensitivities. If there was a group of controllers across the nation with Huerta and OMB, what would they say about how training is going? The large TRACONS would say that washout rates and academy training are the problem rather than how they are doing. Further discussion of the metrics – washouts, etc., increased operational errors and worse productivity due to training will be a better argument. CAMI is looking at performance metrics.

- **F&R – ATC (Jerome and Dino)**

The subcommittee discussed if there are still open F&Rs on ATC. Highlight as a risk the fact that we are using training ineffectively, risk in the dollars that could be saved and reaping the benefits. Allude to previous reports. Alan and Phil to write up an F&R that can help address the ATC issues. This is creating risk. Not getting the efficiency gains due to conservative operations to maintain the margin of safety. Relying on a class of solutions that are expensive and ineffective vs. a system of well-designed systems. Thirty percent of staffing is in training. The write up of an F&R will summarize what the new BLI is meant to cover - training and safety. Some assessment

that gives management and committee a feel for how things are going, April timeframe - potentially by end of April. Tie F&Rs back to framework

Action items	Person responsible	Deadline
Provide briefing on flightcrew monitoring research results, when available. Identified as action of the guidance for FMS uses.	Kathy Abbott	Summer 2015
NASA or Industry should brief on the longer term research during discussion of recommendation 4, FMS documentation design training & procedures.	Kathy Abbott	Summer 2015
Have the software and digital systems team brief on the V&V work they are doing. Also have NASA brief on their V&V work.	Kathy Abbott	Summer 2015
NASA to brief about the work they're doing with the airlines to look at where unique malfunctions are occurring.	Jessica Nowinski	Summer 2015

Presentation Wrap Up | **FAA DFO** *Sheryl Chappell*

Thanks were also given for the time and support of all the members of the Subcommittee.

The FAA DFO adjourned the meeting at 9:50 am on Thursday, February 26.

Meeting Attendance

Sign-in Sheet on Page 13-17

Members

Jack Blackhurst
John Hansman
Alan Jacobsen
David McKenney

Tom Prevot
Bill Rogers
Phil Smith

Other Attendees

Chinita Roundtree-Coleman, FAA
REDAC

Sheryl Chappell, FAA
HF REDAC Subcommittee DFO

Jaime Figueroa, FAA
Kathy Abbott, FAA
Kevin Comstock, ALPA

Carla Hackworth, FAA
Bill Kaliardos, FAA
Jessica Nowinski, NASA
Mark Orr, FAA
Dino Piccione, FAA
Rachel Seely, FAA
Michelle Yeh, FAA
Phi Anh Nguyen, JMA

Phone Attendees

Jason Demagalski, FAA
Kenneth Allendoerfer, FAA
Regina Bolinger, FAA
Kerin Olson, FAA
Dan Herschler, FAA
Mike Gallivan, FAA
Dan Brock, FAA
Tom Nesthus, FAA
Tom McCloy, FAA
Dana Broach, FAA
Ed Sierra, FAA
Darendia McCauley, FAA
Dave Buczek, ATO
Jerry Crutchfield, FAA
Jimmy Bruno

Federal Aviation Administration
REDAC Human Factors Subcommittee
Tec Edge Center, Dayton, Ohio
Meeting Agenda, February 24 - 26, 2015

DAY 1 – Tuesday 24th February 2015

Dial in Access: <https://global.gotomeeting.com/join/590193581>

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Time	Topic	Presenter
8:30am – 9:00 am	Welcome / Opening comments / Introductions	Jack Blackhurst / Sherry Chappell
9:00 am – 9:15 am	Welcome	Jaime Figueroa
9:15 am – 9:45 am	Budget Update	Mike Gallivan
9:45 am – 10:30 am	Welcome and review of activities against last REDAC findings	Rachel Seely
10:30 am – 10:45 am	Morning Break	
10:45 am – 11:30 am	Flight Deck FY2017 Requirements Briefing: Core Program (Flight Deck/Maintenance/System Integration Human Factors)	Kathy Abbott
11:30 am – 12:15pm	Q&A/Findings and Recommendations Discussion	Subcommittee members
12:15 pm – 1:15 pm	Lunch	
1:15 pm – 2:00 pm	Flight Deck FY2017 Requirements Briefing: NextGen Program	Kathy Abbott
2:00 pm – 2:45 pm	Q&A/Findings and Recommendations Discussion	Subcommittee members
2:45 pm – 3:00 pm	Afternoon Break	
3:00 pm – 3:45 pm	F&R	Mark Orr
3:45 pm – 4:30 pm	Presentation on where human factors are in AVS. Explain how human factors get incorporated as new technologies go through AVS.	Kathy Abbott (HF Action Item 10)
4:30 pm– 5:15 pm	Identify what the FAA is doing to address the recommendations from the PARC/CAST FltDAWG report. In particular, the REDAC Subcommittees are interested where the findings are tied to research.	Kathy Abbott (HF Action Item 30)
5:15 pm – 5:30 pm	Wrap up – Homework Assignments - Review of Action Items	All
EVENING	Group Dinner – Logan	

DAY 2 - Wednesday 25th February 2015

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Time	Topic	Presenter
8:30 am – 9:15 am	Review of Homework Assignments from Previous Day /	All

Federal Aviation Administration
REDAC Human Factors Subcommittee
Tec Edge Center, Dayton, Ohio
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Time	Topic	Presenter
	Findings and Recommendations Discussion	
9:15 am – 9:35 am	For Human Factors for UAS ground control station: Subcommittee would like clarification on (1) whether the focus is UAS requirements for operating in the NAS or NAS requirements for accommodating UAS's; (2) specific areas of research related to ground control stations; and (3) how the outputs/deliverables will be used (ANG-C1 to Coordinate).	Bill Kaliardos (HF Action Item 25)
9:35 am – 9:55 am	HF R&D Strategy	Rachel Seely
9:55 am – 10:35 am	Interrelationship between C1 / E25/ AAM-500	Rachel / Kenneth Allendoerfer / Carla Hackworth
10:35 am – 10:50 am	Morning Break	
10:50 am – 11:10 am	WTIC Program	Gary Pokodner
11:10 am - 11:30 am	AAM-500 Overview	Carla Hackworth
11:30 am – 12:30 pm	Q&A/Findings and Recommendations Discussion	Subcommittee members
12:30 pm – 1:30 pm	Lunch	
1:30 pm – 2:00 pm	FY 2017 Strategic ATC/Technical Operations Core Research Directions	Dino Piccione
2:00 pm – 2:45 pm	Q&A/Findings and Recommendations Discussion	Subcommittee members
2:45 pm – 3:00 pm	Afternoon Break	
3:00 pm – 3:45 pm	FY 2017 NextGen Strategic ATC Controller Efficiency Research Directions	Jerome Lard
3:45 pm – 4:15 pm	Discussion of HF REDAC Report from Summer 2014	Rachel Seely/Jack Blackhurst
4:15 pm – 4:45 pm	Q&A/Findings and Recommendations Discussion / Wrap up – Homework Assignments - Review of Action Items	Subcommittee members
6:00 pm	Dinner at Olive Garden	

DAY 3 – Thursday 26th February 2015

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Time	Topic	Presenter
8:30 am – 9:15 am	Review of Homework Assignments from Previous Day /Findings and Recommendations Discussion	All

Federal Aviation Administration
REDAC Human Factors Subcommittee
Tec Edge Center, Dayton, Ohio
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9:15 am – 9:40 am	Request a briefing from ATO Safety so the Subcommittee can gain a better understanding of how fatigue is being addressed. Briefing to be given at Feb 2015 REDAC	Jason Demagalski (HF Action Item 22)
9:40 am – 10:00 am	Morning Break	
10:00 am - 1:00 pm	Tour of Facilities	