NATCA Safety & Tech Update
Week of April 30, 2018

DATACOMM: Chad Geyer (ZLA) is the Article 114 Representative for DataComm. Below is his update.

Controller Pilot Data Link Communication (CPDLC) sites are now sending over 45,000 clearances a week. Clearances are being sent to 11 US Mainline Carriers, 44 International Carriers, multiple Business Jet users and 56 aircraft types. New operators include Lufthansa, Polar Air Cargo and Atlas Air.
The 12.5 build for TDLS (Tower Data Link Services) is still being developed. This build included major enhancements to increase the availability of Auto Mode for our towers. The build also includes fixes for certification from the centers and site issues that have been found over the last 6 months. We are trying to get the build out to the sites as soon as possible, but we want to ensure that each build deployed is more stable than the last.
Three sites are now running a version of EAE100. These sites are ZTL, ZLC and ZME. EAE100 along with the delta builds include the code to turn CPDLC on in the En Route environment. The first planned turn on of CPDLC should be in June of this year. The current plan is to have multiple delta builds at the key sites to support additional functionality during the different phases of the deployment and to provide an avenue for fixes that may be needed for the key sites.
The Program Office visited with ZJX, ZHU and ZDV over the last month to brief them on what is coming with En Route CPDLC. The briefings are a two-day site visit with as many personnel as possible to discuss Functionality, CHI, Program Status, Procedures, Network Service Coverage, Training, DataComm Functional Verification and IOC.
SGET and Ghost Pilot training continues at the key sites. The Program Office is also continuing to train National Training Cadre, Test and Training Lab SME's, Ghost Pilot SME's and SGET developers along with the CPDLC delta courses.
The Program office and Technical SME's have been coordinating with ATOP and NavCanada personnel to discuss requirements and adaptation settings for CPDLC turn on in the US.
The Program Office is also sending members of the Core Tower Team to CPDLC tower sites to update them on their benefits information and answer any questions the facility may have on how the system works. MDW is the first site we are visiting.

ENTERPRISE-INFORMATION DISPLAY SYSTEM (E-IDS): Amanda Richardson (ZOA) is the Article 114 Representative for Enterprise-Information Display System (E-IDS) work. Mrs. Richardson's report for the membership is below**.**

Background: The Enterprise Information Display System (E-IDS) project aims to replace all existing IDSs in the NAS, providing the Agency with one enterprise solution across facility types. While some customization is, necessary and should be available, one system will reduce overall costs for upkeep and training and resolve

the upcoming end-of-life issues we have with our current IDSs in the field (IDS-4, ERIDS, etc.). The project is working towards finalizing requirements by the summer of this year, with a contract scheduled to be awarded in 2019.

Progress continues to be made to secure time for me as the Art 114 Rep and to finalize the Cadre / SME scoping agreement. NATCA National and FAA's AJT are currently working the scoping agreement.

The E-IDS project was presented to the FAA's JRC (Joint Resources Council) and received approval for the Initial Investment Decision. This milestone was an important step in moving the project forward.

Human Factors workgroup meetings continued, this time with a focus on alarms and alerts for both end users and Tech Ops Monitor & Control. This work is ongoing.

Scheduling for the Tower, TRACON, and En-Route demo work is completed and all activities are scheduled in May.

Upcoming activities:

- Weekly / bi-weekly program status and engineering telcons (ongoing)
- En-Route demo group work with MITRE (scheduled for May)
- Tower / TRACON demo group work with MITRE (scheduled for May)
- Human Factors workgroups NATCA, FAA, and PASS (ongoing)
- Training telcons (scheduled monthly – ongoing)

FLIGHT DATA INPUT OUTPUT (FDIO): Corey Soignet (LFT) is the FDIO Article 114 Representative. Also, included in Mr. Soignet's duties is Article 114 representation for the Electronic Flight Strip Transfer System (EFSTS). Mr. Soignet forwarded the information below for the membership.

FDIO The first article testing is still on going and the new printer is in operation at the first key site ACY. ACY has helped the FDIO team identify an issue that was hidden in the programing code. That issue was quickly corrected and after further testing was reinstalled in ACY and no further issues have been discovered. The controllers have commented on the quality of the font on the new printer along with it being noticeably quieter. I90 will no longer serve as a key site due to conflict with other projects in their facility. The FDIO team has selected MCO and F11 to fill the void that I90 left for testing. After successful key site testing at both ACY and MCO/F11 we will then move forward with the additional key sites Honolulu, Alaska and Puerto Rico for their unique printer requirements.

EFSTS MEM Tower is scheduled for the EFSTS Keypad Replacement on June 11-15, 2018. MEM Tower will be the last facility to install the new EFSTS Keypad Replacement.

FIDI There is nothing to update at this time.

NAS VOICE SWITCH (NVS): Jon Shedden (ZFW) represents the NATCA membership as their Article 114 Representative to the NVS project. His report is below.

The NAS Voice System (NVS) schedule has officially slipped. The FAA and Harris continue to work on a new schedule. The detailed schedule is expected around the April time frame.

Mr. Shedden was at the Tech Center April 16th-20th and April 23rd-27th for NVS Validation testing.

Next Generation Air-Ground Communication (NEXCOM) continues deployment of new CM300/350 V2 radios to terminal facilities across the country. Some terminal facilities in the NAS using very old radios hear a pop back or "squelch tail" when they release their transmitters. The new radios being deployed under NEXCOM Segment 2 do not have this "feature" as the squelch tail is generally regarded as undesirable in radio communications. This issue has cropped up twice now during deployment and the program office should brief future affected facilities prior to install.

NAS Voice Recorder Program (NVRP) is the replacement for existing NAS voice recorders (DALR, DALR2, DVRS, DVR2). The Program Office presented to the JRC and received approval to proceed to Final Investment Analysis, leading up to the Final Investment Decision. Final Investment Decision will be in February 2019. Key site for NVRP will be Seattle Center in the 2020. A Safety Risk Management Panel is schedule for April 12th.

NVRP is currently in the source evaluation phase.

Grand Rapids Tower/TRACON (GRR) is reporting multiple issues with their aging voice switch. There's one outstanding issue where a RADAR site is causing interference in the Tower Cab. That issue continues to be worked.

The Tone Mitigation National Workgroup met in September 2017 to discuss potential mitigations to the number and severity of tone/noise events across the NAS. This workgroup kicked off largely because of the number of tone/noise events occurring at PCT. One of the outcomes from these meetings was exploring the use of new headset bases which incorporate an active limiter. The FAA is in currently in the process of procuring these new headset bases. Another outcome was the

investigation into and possible mitigations for the various causes of tone/noise events. AJW-173 in Oklahoma City continues to work with PCT to identify causes and implement solutions, with the additional goal of providing guidance and best practices nationwide.

PCT is tentatively scheduled to begin the evaluation of these new headsets in June.

INTEGRATED DISPLAY SYSTEM REPLACEMENT (IDS-R): Richie Smith (N90) leads NATCA's efforts on the IDS-R project as the Article 114 Representative. Below is Mr. Smith's report.

The testing for NIDS software V3.6.4 which was scheduled for the week of April 23 was postponed due to a "bug" that was found by the team at the lab in Atlantic City. A new test week is tentatively scheduled for the week of June 11, which is dangerously close to the end of the contract (June 30, 2018) between the vendor and the FAA.

The issue was at first only encountered in Atlantic City using specific file downloads but then was recreated with those files at the vendor's lab in Sacramento. The obvious question of the possible corruption of the file as well as the more time-consuming analysis of previous software builds are being investigated to try and find an answer. Until the bug is found testing dates cannot be verified nor future plans (keysites, distribution, etc.) confirmed.

SURVEILLANCE BROADCAST SERVICES (SBS) OFFICE: Eric Labardini (ZHU) is the Article 114 Representative to the SBS Office. Below is the update for SBS.

The NATCA Surveillance and Broadcast Services (SBS) team includes: **Eric Labardini (ZHU),** National SBS Article 114 Rep, **Craig Bielek (A90), Dan Hamilton (SFO),** National Airport Surface Surveillance Capability (ASSC) Rep, **Andrew Stachowiak (I90), Tom Zarick (ZDV),** National Interval Management Rep, and **Chris Aymond (MSY),** National Terminal Interval Management Rep

ADS-B:

- As of April 1, 2018, the number of Rule Compliant ADS-B Out aircraft in the US reached 47,122. ADS-B In equipped aircraft reached 40,101. The growth in aircraft equipage has been significant, and some areas of the NAS are seeing high percentages of traffic equipped. However, the projections are still falling short of the numbers needed prior to the January 1, 2020 deadline to equip. Despite some April Fool's articles, the Agency has been clear that the deadline is firm.
- By 2020, the Agency estimates that 6000-7000 US registered air carriers will need to be ADS-B Out equipped, and there are currently about 2000. Most, if not all, Air Carriers have provided the Agency with a plan to meet the

deadline. However, the means to achieve those plans in the short amount of time remaining is becoming a larger question. A partnership between United Airlines, Rockwell, and the SBS Program Office recently completed ADS-B Out installations on 110 United B737 Rockwell fleet. American, Delta, Alaska, and many other airlines are showing increased fleet ADS-B equipage. American has also announced a plan to equip 320 Airbus aircraft with ADS-B In.

- For General Aviation, the very rough estimate of avionics installation capacity nationwide is 50,000 aircraft per year and delays are becoming common at multiple installation facilities. The overall tally of all NAS aircraft could be as high as 160,000, but the actual number that operate in ADS-B Rule airspace and therefore need to equip seems to be much lower as traffic is better analyzed. Operational trend data shows that those aircraft that operate in ADS-B Rule airspace (where a transponder is required) is closer to 80,000. Users that wait too close to 2020 may find that the capacity for installation falls short of demand.
- The military has already indicated they will be unable to meet the 2020 deadline. Several of their older airframes simply cannot accommodate the new avionics. The military does expect to equip newer fighters and all of their larger aircraft and the effort to do so has begun. To deal with the exceptions, the Agency is working on agreements with DOD to ensure identified radar sources remain in place.
- ADS-B IOCs have been completed at all Enroute (ERAM and MEARTS) facilities. All ERAM sites have promoted ADS-B to the top of their sort cells. 3 of 4 MEARTS facilities are operating on Fusion with ZSU next to transition.
- 123 of 155 Terminal sites have reached their ADS-B IOC, and 119 are operating on Fusion. The majority of the remaining Terminal sites are ARTS 2E sites awaiting an upgrade to the ELITE (STARS) build. The Terminal ADS-B/Fusion transition proceeds in this order: Kickoff meeting, ADS-B Flight Inspection, ADS-B IOC, Fusion Operational Suitability Demonstration (OSD) and Fusion Operations. The most recent and upcoming Terminal events:

    - Toledo (TOL) Fusion OSD 3/27
    - Waco (ACT) ADS-B IOC 4/3
    - Waco (ACT) Fusion OSD 4/3
    - Youngstown (YNG) ADS-B Flight Inspection 4/4
    - Southern California WAM Phase 2 Flight Inspection 4/10
    - Casper (CPR) ADS-B Flight Inspection 4/11
    - Toledo (TOL) Fusion Transition 4/12
    - Waco (ACT) Fusion Transition 4/19
    - Great Falls (GTF) ADS-B Flight Inspection 4/24
    - Youngstown (YNG) ADS-B IOC 4/23
    - Falmouth-Otis AFB (K90) ADS-B IOC 4/27
    - Asheville (AVL) Flight Inspection 5/2
    - Youngstown (YNG) Fusion OSD 5/2
    - Youngstown (YNG) Fusion Transition 5/9
    - Rochester (RST) ADS-B Flight Inspection 5/9

- Casper (CPR) ADS-B IOC 5/11
- Casper (CPR) Fusion OSD 5/16
- Reading (RDG) ADS-B Flight Inspection 5/16
- Great Falls (GTF) ADS-B IOC 5/22
- Springfield (SPI) ADS-B Flight Inspection 5/23
- Lake Charles (LCH) ADS-B Flight Inspection 5/23

ADS-B Avionics Issues:

- An issue not screened by automation systems but an important assumption for future ADS-B dependent applications is the broadcast call sign of the user. ADS-B aircraft reports include this information, and automation systems compare it to the filed call sign. When a mismatch occurs a Call Sign Mismatch (CSMM) alert can be generated. The issue has been highlighted in Equip 2020 meetings since ADS-B dependent applications (CAVS, Advanced Interval Management, etc.) are dependent on this functionality. Monthly tracking continues to show this as a significant problem. ***The SBS Article 114 work group has recommended disabling CSMM alerts across all automation platforms.***
- A flight test was conducted February 27 to examine the effect of ADS-B Duplicate ICAO Address on ERAM and STARS. Engineering assumptions have always been that when this condition occurs with two aircraft within 6nm, the SBS network would either drop the tracks, swap the tracks or other. The initial results of the flight test show the events are much more conservative. Test aircraft as far apart as 50nm were still dropped from the network and presented as radar only targets. The SBS Article 114 work group has concluded that Duplicate ICAO Address alerts are not worthwhile for controllers, and an effort is underway to remove them from all ATC automation systems. They will still be available for Flight Standards compliance monitoring efforts.
- NATCA SBS continues to work with the Agency toward a more proactive approach to ADS-B avionics issues that result in position error. Though these are infrequent occurrences, the Agency's ability to respond has been hampered by a lack of resources, bureaucracy, and legal constraints. These issues occur when standards for installation or configuration within aircraft or ground systems are not met. ADS-B is a cooperative surveillance source relying on position accuracy determined onboard the aircraft. Multiple ATSAP reports have been filed on the known issues to date. Controllers and facilities are encouraged to report any identified events through ATSAP and any other mechanism.
- In order to reduce the number of safety compromising events in the NAS an effective, efficient response mechanism is needed. The Agency has deployed additional mitigations including enhanced validation (EV) and a No Services Aircraft List (NSAL).
    - The NSAL (aka "blacklist") is effective in dealing with chronic non-compliant aircraft, but it lacks the ability to respond quickly. As such it will likely always be needed as a backstop to compliance or

enforcement issues. An issue identified and reported immediately takes a minimum of one day to place the aircraft on the NSAL.
    - Enhanced validation (EV) shows the most promise operationally as it is a real-time response to invalid ADS-B targets. The latest update to EV already deployed within 15nm around a Terminal Radar has shown positive results. Additional EV techniques are being analyzed, including expanding the range beyond 15nm and further increasing the responsiveness. SBS Engineering is working diligently with Harris to incorporate these changes with additional EV parameters in 2018. With 2020 approaching, rapidly, these changes are needed sooner than later to limit the sporadic effects of non-compliant avionics.
- SBS Article 114 work group discussions resulted in all B787 aircraft being placed on the NSAL. These aircraft have a latent avionics issue that causes false position information to be displayed to the controller. This has alarmed several facilities and caused both SCT and NCT to demote ADS-B in their sort cell priorities. Boeing released a Service Bulletin to address the problem. United, American and many others have confirmed completing the Service Bulletin allowing them to be removed from the NSAL. Other B787 aircraft are slowly being pulled off of the NSAL as verification of the Service Bulletin is received by Flight Standards.

Advanced IM

- AIRS Working Group to meet 1st week of May. Growing concerns surrounding American's equipage timeline not aligning with program timeline.
- Paired Approach HITL still in progress at MITRE. Initial data report to be available mid-summer.
- GIM-S demonstration scheduled for the NUT team at the Tech Center the week of May 14th.

ASDE-X Tech Refresh:

- If the Taxiway alert enhancement is deployed on a national scale, the PMO would need to take control. As of right now, SEA is the only facility scheduled to receive this enhancement.
- Discussions continue regarding parts obsolescence and what the best path is moving forward in addition to increasing bandwidth capacity as traffic levels increase in the NAS.
- ASDE3 radar discussions continue as the agency struggles to decide if they should go the tech refresh route, or full replacement route. No decisions have been made at this time.
- The agency is starting to align ASDE-X with ASSC on the software systems side. Although controllers will not yet have all the same functionalities on both systems, it will allow for improved system performance and fine tuning capability which controllers will benefit from. The goal in time is for both systems to be equal on the software and controller capability aspects.

ASSC:

- CVG IOC achieved on April 5th.
- MCI will be the next facility of the team's focus.

- PIT and PDX participated in planning meetings this month as well. Both facilities are looking forward to the new system.

FMA in Fusion:

- The SRMD allowing the combined use of FMA and Fusion reached final approval on November 1, and the Notice allowing the operational start is now in place. Facilities that use FMA can now use Fusion on these positions as well.
- The change in procedure is not anticipated to require additional controller training as these facilities are already trained on both FMA and Fusion.
- Fusion on the FMA position, like all other positions, requires a thorough understanding of contingency plans should a radar sensor fail.

MEARTS Fusion:

- 3nm Fusion in MEARTS is a complex undertaking requiring multiple Tower, Approach, and Enroute sectors to come online with Fusion at the same time. The lessons learned in this undertaking will help the effort with future MEARTS and ERAM sites.
- ZAN has been on Fusion since August 2015. HCF has been on Fusion since August 1, 2017.
- Congratulation to ZUA! The facility transitioned to Fusion on March 26, 2018.
- A Fusion kickoff meeting, Air Traffic Cadre, and some limited Fusion observations took place the first week of April at San Juan CERAP (ZSU). Analysis of the observations resulted in a need for automation changes not available for several months. The next planned event for ZSU is an Operational Suitability Demonstration the first week of June.

Surveillance Portfolio Analysis Work Group

- Eric Labardini and James Keith (NATCA AJV-7) have been working closely with the Agency's multifaceted analysis of post 2020 radar infrastructure needs. The ADS-B business case was built on an assumption that today's robust radar infrastructure could be reduced once ADS-B becomes the predominant surveillance source.
- The Agency built their business case on an assumption that 100+ secondary radar sources could be removed throughout the NAS. This causes concern in airspace that does not require ADS-B (many Class D or other Approach Controls). NATCA has been pointing toward another option, removing overlapping radar sources completely rather than harming operational capabilities nationwide.
- The SPA WG has developed a draft list of 18 candidate sites for full removal. However, there are several that require more discussion and analysis. NATCA is working closely with the Agency on candidate sites. Another concern is the reliance on military radar sites to provide replacement coverage; these sites have historically had issue with availability and clutter.
- An SRM Panel was held August 1-3 to analyze the risks associated with partial or complete removal of radar systems in a post 2020 environment. The conclusions of the Panel were that partial removal

actually resulted in higher risks than complete removal. This assumes that complete removal would only occur where the effects were minimized by other overlapping radar sources nearby.

- An additional SRMD took place week of April 9 with Eric Labardini and James Keith participating. There were no changes in the overall outcome of the first SRMP meeting. The Panel relayed that ATC services would need to remain identical from a high-level perspective. Only at the local level can determinations be made to compromise on today's coverage.

Terminal Fusion:

- The Fusion Focus Group continues to track and resolve facility reported issues with Fusion. These are largely issues with the underlying surveillance infrastructure, and experts from all fields are available to assist. Please report any issues to your OSF and our NATCA SBS group for assistance. It is critical that actual data is recorded for evaluation and resolution.
- SCT issues continue to be a large focus. NATCA SBS is heavily involved in the Surveillance Automation Analysis Team (SAAT) which is examining long term alternatives to help improve overall surveillance in the SCT airspace. The result is a multi-faceted approach including WAM, raising LGB radar, introducing other nearby radar feeds, STARS software changes, and radar software changes. In addition, SAAT is focused on mitigating tracking issues in the LA Basin due to the construction of a new NFL stadium on final approach to LAX.
    - The LGB radar site is now back online and in use at SCT. The radar site was raised from 37 feet to 67 feet. Feedback from SCT has been positive.
    - Agreements are being worked with the military to ensure availability and performance of the North Island radar. Adding this additional surveillance source shows promise for tracking issues around SAN airport.
    - WAM has been plagued by numerous fits and starts harming the confidence of the facility. SBS Engineering is in a long-term monitoring posture as additional WAM adaptation changes are introduced to combat reliability and tracking issues seen. A remedy for interference from current environmental issues and LA Stadium construction is desperately needed. The second phase of WAM at SCT should be available by May 2018.
- SAAT has been analyzing Potomac (PCT) Fusion issues for potential solutions. The facility has been struggling with a number of issues related to problem radar sites or a lack of coverage. Radar analysis is confirming the benefit of adding Quantico (NYG) radar to PCT as well as reducing obstructions near Dulles. Funding for the additional NYG feed is being sought.
- Raleigh-Durham (RDU) has suffered for too long with tracking issues. A thorough analysis of the situation was provided in late 2017 showing that the RDU ASR itself is screened by tree growth. Efforts to reduce this screening are underway but wrapped up in local political issues. SBS has agreed to

fund additional radar sensors to help with the Fusion presentation, but if the tree screening is not resolved their tracking issues will continue.

- NATCA and Ops Support SMEs from SBS have completed a review of numerous requests for additional radar feeds across the NAS. The focus of our team is those that benefit Fusion tracking. Issues such as service expansion are outside of SBS scope and should be worked through other channels.

Vehicle ADS-B:

- 1289 vehicles equipped at 20 airports.
- CVG SAT will occur in early May with will add additional 176 units to our matrix.
- The vehicle team made a trip to IAH and HOU to work out some vehicle issues we have observed through the compliance monitor, one of which resulted in a false alert on ASDE-X at HOU last month. All issues were resolved.

TACTICAL ACTION NOTIFICATION RESPONSE (TANR): Shannon Jenkins (ZME) is the Article 114 Representative for Tactical Action Notification Response (TANR). Her report to the membership is below.

-Continued to establish contact with FACREPS from other facilities to better educate and prepare them for upcoming briefings and exercises and to answer any questions they may have.

-Exercise for ZBW was on March 27 and was a success. The controllers were very impressed with using TANR and they felt it helped immensely with coordination. There were minor issues with the line but that has been remedied and a follow up exercise will be performed May 2. The second exercise will allow more personnel to experience TANR.

-Preparing for Super Bowl Exercise in Atl that will occur in May. Been in touch with NATCA Rep at ZTL and have provided him with educational materials as well as answered any questions he had.