SAFETY AND TECHNOLOGY DEPARTMENT UPDATE

Week ending August 28, 2015

WAKE TURBULENCE: Scott Pressley (BHM) is NATCA's Article 48 Representative to the Wake Turbulence Office. Mr. Pressley provided the information below for this week's update.

- The week of August 24th was spent on 3 different tasks.
    - Time was spent working on the En-Route best practices piece. They are still looking at several options on how to best minimize enroute wake turbulence encounters.
    - Time was spent working on the Wake Turbulence 101 training. This training will be available to both ATC and pilots and the challenge is to make it relevant to both.
    - Mr. Pressley also spent time working on the ICAO En-Route wake mitigation presentation that has to be presented in late September at the Wake Turbulence Study Group meeting.

UNMANNED AIRCRAFT SYSTEMS (UAS): Steve Weidner (ZMP) leads NATCA's efforts on UAS as the Article 48 Representative. Below is a list of Mr. Weidner's activities for last week.

- Participated in a call with Michael Ball (Northrup Grumman) regarding participation in CFS and AAAE conferences
- Reviewed the Pathfinder #2 (Extended Visual Line of Site - EVLOS) ConOps and Research Plan
- Coordinated with RDU facrep, Chad Hidinger regarding and RDU SME participating in the SMS panel for Pathfinder #2 - EVLOS
- Reviewed the AFS80 position paper on Acceptable Use of DAA Functions by UAS
- Reviewed the Class E UAS SRMD draft
- Reviewed AJV7 Model Aircraft and sUAS scenarios
- Participated in a telcon with Tomaso DiPaolo (NATCA Aircraft Certification National Rep) and Anthony Vilante (NATCA Aircraft Certification) to discuss NATCA participation in UAS aircraft certification
- Reviewed the Pathfinder #3 (Beyond Visual Line of Site - BVLOS) HAW and write a first draft of a dissenting opinion on the panel's finding that the pilot of a manned aircraft was not considered a common cause failure.
    - This dissenting opinion draft is an ongoing effort involving
        - NATCA Safety Chairman, Steve Hansen
        - NATCA ZAB UAS SME, Danny Watson
        - NATCA Director of Safety and Technology, Dale Wright
        - NATCA Safety and Tech Department Terminal Operations Coordinator, Chris Stephenson.

TOWER FLIGHT DATA MANAGEMENT (TFDM): Matt Baugh (IAH) is the Article 48 Representative for TFDM. Mr. Baugh's report to the membership is below.

- **TFDM:** The Boston Operational Evaluation Review (OER) was rescheduled to Oct. 28 & 29. Source Selection has been ongoing since July and is on track to be completed by Nov. 2015. Contract award is still planned for after the Final Investment Decision in March 2016. The Implementation Team delivered the Implementation Strategy and Planning Document (ISPD) to the PM to start the signature process. The Investment Analysis Team briefed IP&A with the methodology for quantifying Electronic Flight Data (EFD) safety benefits.
- **Advanced Electronic Flight Strips (AEFS):** CLE has been updated with the new baseline hardware and software. Site regression testing is planned from 8/30 - 9/4 on the mid shifts. Once we are satisfied with the new build in CLE, the PHX system will be brought up to that configuration. EWR IOC is planned for April 2016 with SFO following shortly after in July.
- **Electronic Flight Strip Transfer System (EFSTS):** Following the success of the EUIE last week, final requirements are expected to be completed in late September and the updated EFSTS Technical Instruction book and Operator Manual are scheduled to be completed by late October.

TIME BASED FLOW MANAGEMENT (TBFM): Eric Owens (I90) is the TBFM Article 48 Representative. Mr. Owens provided the information below for this update.

- Last week the TBFM National Training Development Team me in DC to work on IDAC Training.
  - o This training will be used to train IDAC facilities and then incorporated into the national course.
- In addition, a customer forum was held at MITRE.
  - o The forum was productive and will help us in the future with TBFM delivery and updates.

TERMINAL AUTOMATION MODERNIZATION REPLACEMENT (TAMR): Mitch Herrick (MIA) is the TAMR Article 48 Representative. Mr. Herrick and various team leads for TAMR have provided the reports below.

- **Mitch Herrick - TAMR Article 48 Representative**
  - o On Saturday, August 29th S56 became the most recent facility to successfully transition to STARS G4. Another milestone for the TAMR program as we continue to meet schedules and Acquisition Program Baseline (APB) dates on or ahead of schedule in all Phases and Segments of the program.
    - ▪ This is representative of a lot of hard work by the folks at the facility and the program.
  - o Mr. Herrick also travelled to Washington, DC this week for the beginning of the Section 804 process to analyze the possibilities for Charleston TRACON to potentially move to either Savannah, GA or Myrtle Beach, SC.
    - ▪ The trigger for CHS inclusion to the 804 process was a failed seismic reinforcement project at CHS.
    - ▪ The cost of the seismic reinforcement is exorbitant and the Agency is therefor considering building an entirely new building. 804 must determine if the cost is

warranted or if realignment to another facility makes sense. The 804 group will collect data from the facilities then visit each. They will take input and then make recommendations to leadership.

- **OSF/Multi Unit update submitted by Candy Barr-NEOSF**
- Monday
  - o Mr. Barr attended the TAMR weekly staff meeting. Ms. Barr attended the TFOS Coordination Telecom
- Tuesday
  - o Thursday Steve Sims and Mary Manifold traveled to North Texas OSF to provide OSF specialist with MSAW refresher training. Ms. Barr attended the P1 DRD Planning Telecom. A90 and MCO G4 software for IOC and whether these sites would receive the DRD's or use the Dell RAIDS were the main topics. Mr. Barr attended the MDM Telecom
- Thursday
  - o Ms. Barr attended the PRE-CCB Telecom OSF specialist attended the weekly Technical Telecom.
  - o Ms. Barr attended the DRD, A90/MCO planning Telecom. The group will set up a Telecom with the sites to discuss the options for G4 IOC.
  - o Ms. Barr attended the STRWG Telecom. D01 CRDA was the hot topic. Plans are to add increased functionality in s6.r3b software.
- Friday
  - o Mr. Barr and Ms. Barr attended the weekly TAGUP Telecom. Ms. Barr attended the NATCA SBS biweekly Telecom. SCT issues with tracking were discussed.
- **STARS/TAMR Phase 3 Segment 1 update submitted by Doug Peterson-D10**
  - o Segment 1 lead Doug Peterson dialed into three planning telcons this week for upcoming transitions at Minneapolis (M98), Atlanta (A80) and Potomac (PCT) and three regularly scheduled weekly telcons for continuous operations at SCT, TAMR staff meeting and the NATCA/TAMR tag-up.
    - The most significant issue from these meetings is the continuing reports of trackball failures at PCT and the mitigation strategy. A prototype modified trackball will be delivered by the vendor the first week of September.
    - There is also a possibility that STARS trackballs could be temporarily replaced by CARTS trackballs, but this could only be for the short-term and carries the disadvantage of postponing any diagnostic and corrective action that needs to take place with the STARS trackballs.
    - The failure rate at PCT is not significantly higher than other STARS sites, but the impact seems to be greater.
  - o In a meeting with STARS system engineering a new requirement for system recovery after power failure was discussed at length.
    - The issue is that hardware required to support a 60-second recovery from power failure is no longer produced by any vendor.
    - New products would have to be created at significant cost.
    - An alternative is to return to the pre-TAMR requirement of 6 minutes to recover from power failure. NATCA will work with systems engineering to produce a report that details options, risks and mitigations.

- o NATCA participated in an STR Working Group meeting Thursday to discuss the requirements for three software changes that are planned for the R5 build.
- **STARS/TAMR Phase 3 Segment 2 update submitted by Scott Robillard-K90**
  - o Aug 25, 2015, Tim Poer (ABI) and Dan Stefko (Region X) attended the Initial Site Survey (ISS) at ACT.
  - o Aug 25, 2015, Bill Spence (BTV) and Richard Thomas (GEG) dialed into the OSF adaptation Kick Off meeting for COS.
  - o Aug 25-26, 2015, Scott Robillard (K90) attending a S804 Work Group working session for a study of a possible realignment of CHS.
  - o Aug 26, 2015, Joe Yannone (Region X) dialed into the RIO for CTD.
  - o Aug 26, 2015, Bill Spence (BTV) dialed into the EVV IOC planning telcon.
  - o Aug 27, 2015, Richard Thomas (GEG) participated in the waterfall change control board. This board makes waterfall recommendation changes to facilitate ARTS IIE replacement in the most expeditious and responsible way possible.
  - o Aug 27, 2017, the SEG2 monitored the TSLE Shakedown out brief for the installation of the G4 STARS ELITE at the Denver OSF.
  - o Aug 27, 2015, Joe Yannone and Frank Stahler (Region X) dialed into the weekly CTD test preparation meeting. The CTD has yet to be certified for deployment in the NAS and the work that Joe and Frank are doing is vital to a successful deployment of this digitizer.
- **STARS/TAMR Phase 1 update submitted by Jimmie White-PHL**
  - o **Monday 8/24:** Weekly TAMR Staff Meeting. Risk Identified with bringing F11 (Orlando) and A90 (Boston) up on the new RAIDS (X2000). X2000 RAIDS can only be deployed with R4 (merge build) software. R4 has slid to the right by two months putting the R4 run for record at the end of January or early February. Then Key site and national release before X2000 can be key-sited. The tentative plan is to use the two DELL RAIDS in the testing lab at WJHTC until the X2000 can be deployed.
  - o **Tuesday 8/25:** MDM meeting. Testing V2.03 is still planned during the Sept. R4 risk mitigation event. The test will operate FSL in digital and EFSL in analog. The goal is prove stability in this configuration. But first the test team has to buy off on the plan. The question mark is how the team can determine any flaws found were due to R4 flaws and not V2.03. Pending this is a go and proved during the risk mitigate event, the program will request a key site at S46 (Seattle). The goal is to mitigate the issues that have stifled the MDM engineers while proving the long held belief that the S46 MDM issues are analog driven. Between TSLE and Esterline, they are almost out of options with finding the root cause of the MDM3 issues. The hope is that the digital input will eliminate all MDM problems at the site.
  - o **Wednesday 8/26:** R3 Drop 11 OT&E Regression passed without issue. This software fixes a beacon code mismatch. Aircraft on the runway were acquiring with airborne aircraft tracking near the departure airport while climbing through Ten Thousand feet. Also, we observed the stitching issue at I90 was resolved via software. The tracking was smooth and steady where as before, the track update in a certain area of the display jumped quite a bit.
  - o **Thursday 8/27:** Risk and Opportunities meeting. Big topic with what to do for A90 with respect to the RAIDS situation. This is complicated due to the fact R4/X2000 won't be

ready and no other build supports the direct radar feed to BOS tower. Two options for discussion are, can BOS deal without DRF until X2000 is ready to be released to the field. If no, can A90 work FSL on G4 and EFSL in G1. Theoretically it could work, but this has to be proved. Further discussions to come.

- o **Friday 8/28**: Tag up meeting. Phase 1 rep reports X2000 complications and best case scenario, with all testing and key site efforts going successful on a first run, allow R4/X2000 to be nationally deployed in the middle of May 2016. Further slipping could put other I.O.C.'s at risk.
- o **Saturday 8/29:** S56 (Salt Lake City) declares I.O.C.

TEMPORARY OPERATIONAL CONTINENCY OFFICE (TOCO): Tammy Norman (ZTL) is NATCA's TOCO Article 48 Representative. Her report for this week is below.

- With the recent ATC Zero event at Washington ARTCC, the FAA is again under scrutiny by Congress and the users of the NAS.
- Tony Jenkins, TOCO manager, is to brief Randy Park, FAA Deputy Chief Operating Officer, concerning the goals of our upcoming WJTTC Meetings and future projects of the TOCO.
- Updated OCPs and Support Agreements for each ARTCC
  - o Clear understanding of what "airspace divestiture" will include and not include based upon:
    - Facility capacity
    - Automation infrastructure
    - Communications infrastructure (air/ground and ground/ground)
  - o Provide information for future OCP development
  - o Epilogue from WJHTC Meetings
  - o Determine efficiency of current OCP against Administrator's goals
  - o 1900.47D version
  - o Use of Contingency Planning Support System (CPSS) routes (non-radar)
  - o Use of dedicated arrival/departure routes (non-radar)
  - o Determine efficiency of updated OCP against Administrator's goals
  - o 1900.47E
  - o Divestiture of airspace
  - o Possible relocation of personnel to support facilities
  - o Develop gap analysis between the current and updated OCPs
  - o Provide OCP efficiency status to FAA Senior Management
  - o Provide recommendations for NAS investments to meet Administrator's Goals
- **Eastern NAS Meetings Finalized:**
  - o September 21st-25th
    - ZAU, ZOB, ZBW, ZID, ZME, ZTL, ZDC, ZMA, ZJX, ZHU, and ZNY Operational Contingency Teams will attend
- **Western NAS Meetings:**
  - o October 19th – 23rd
    - ZSE, ZOA, ZLA, ZLC, ZDV, ZAB, ZMP, ZKC, ZFW

- **The TOCO attended a VTC from contractors introducing the SMART** : A Simulation Model ATC Research & Training system at the cutting edge of ATC training & software architecture. It is a multi-faceted Air Traffic Control (ATC) high fidelity simulation system dedicated to the training of Air Traffic Controllers at all levels. The TOCO team members will be traveling to Oklahoma City next month for a demonstration of SMART's capabilities. The group has requested ATSI to recreate the ZAU ATC Zero event to provide us knowledge of the SMART's benefits in training for ATC Zero events.

SURVEILLANCE and BROADCAST SERVICES (SBS) OFFICE: Eric Labardini (ZHU) leads the SBS Article 48 Team. This team works on issues such as ADS-B, Fusion, Interval Management, Ground Surveillance and other projects. Mr. Labardini and the other members of the SBS Article 48 Team forwarded the reports below for this update.

- **Eric Labardini (ZHU),** National SBS Article 48 Rep
  - The MEARTS 3nm Fusion SRMP finished on Monday. Participation from ZSU, ZUA, and HCF was instrumental. MEARTS does have unique considerations compared to STARS/CARTS, but no new hazards were identified.
  - Traveled back from Honolulu on Tuesday night/Wednesday morning, the end of eight weeks of travel.
  - Thursday, participated in the weekly Reduced Oceanic Separation (ROS) ConOps development telcon, our weekly NATCA SBS telcon, and an ATS All Hands telcon.
  - Friday, discussed SBS issues with my Agency counterpart, participated in the weekly SBS Hot Topics telcon, and participated in the bi-weekly NATCA SBS/TAMR telcon.
- **Craig Bielek (A90)**
  - Monday traveled to Savannah (SAV)
  - Tuesday participated in the SAV ADSB flight inspection.
  - Wednesday participated in the SAV ADSB and Fusion cadre instructor class.
  - Thursday traveled home from Savannah.
  - Friday participated in the NATCA SBS/TAMR coordination telcon.
- **Dan Hamilton (SFO),** National Airport Surface Surveillance Capability (ASSC) Representative
  - **ASSC:** Still awaiting direction from the agency on the final configuration. SFO New tower site survey planned for the week of September 7th.
  - **Vehicle ADS-B:** 637 vehicles equipped at 12 airports. IAH transmit map should be submitted for approval very soon. 9 additional airports have requested proposals.
  - **ASDE-X refresh:** Continues to move along without any issues.
- **Andrew Stachowiak (I90)**
  - On leave this week.
- **Tom Zarick (ZDV),** National Interval Management Rep
  - GIM-S Assessment meeting was held at ZDC on Monday.
    - ZNY, the only remaining facility will be rescheduled due to an overlapping TBFM event that was scheduled for the same day.
  - Wednesday was spent at MITRE supporting the GIM adaptation work for ZMP. Seems as though the demo could have run a little smoother had some additional Lockheed support been provided.

- ▪ Agreed to have this in place prior to the ZHU demo scheduled for the middle of September.
  - o The IM AA&C Systems Engineering Work Group Meeting was on Thursday. Very productive discussion was held regarding the issuance of FIM clearances that merge in Terminal airspace.

RUNWAY SAFETY: Ric Loewen (DFW) is the Runway Safety Action Team (RSAT) lead for NATCA. This position is in accordance with Article 113, Section 2. Mr. Loewen's report for this week is below.

- **RWSL:**
  - o Mr. Loewen will be going to BWI 9/9 to make an RWSL presentation at their RSAT.
  - o **Site status:**
    - ▪ MSP completed Joint Acceptance Inspection (JAI), Operational Readiness Decision (ORD), and commissioned 8/13
    - ▪ ORD system checkout is in process. Installation is being completed in 3 phases, the first of which is scheduled for Initial Operating Capability (IOC) early February 2016.
    - ▪ DTW IOC 7/8, Operation System Development (OSD) is on going. JAI and ORD planned for mid September.
    - ▪ LAX OSD is ongoing, JAI and ORD planned for late September.
    - ▪ EWR controller training scheduled for mid to late September, IOC January 2016.
    - ▪ BWI is briefing RWSL at their RSAT on September 9, Site Acceptance Testing (SAT) planned for late 2016, IOC mid 2017.
    - ▪ JFK is being installed in three phases, phase 1 shadow ops and IOC scheduled for lat October 2015. Phases 2 and 3 should reach IOC next summer.
- **Runway safety:**
  - o The topic at the top of most conversations has been the use of runways as taxiways. There are risks associated with using a runway as a taxiway including but not limited to: pilots will frequently taxi faster than they will on a taxiway leading to greater stopping distances and reduced time to react to other traffic, sight lines to signage and obstructions are wider leading to degraded situational awareness, surface markings are different than on taxiways leading to degraded situational awareness, and some facilities allow ground control to taxi aircraft on or across runways which also degrades the flight crew's awareness of other traffic that is approaching or departing the runway.
  - o There are times when it is necessary to use a runway as a taxiway, but those operations should be limited to the greatest extent that is possible. This is a question of risk management. Sometimes riskier operations are required but they should be managed/mitigated by heightened tower crew awareness and in some instances through a more strict adherence to standard operating procedures to instill as much safety as possible.
- Monday 8/24 was the fifth **Airport Construction Task Group** Meeting hosted by RTCA.
  - o The Runway Template Action Plan (RTAP, a checklist of actions associated with new runway construction) was compared to the **Airport Construction Advisory Counsel**

(ACAC) checklist for airport construction (N JO 7210.3 para. 10-3-11) to begin construction of a tool that will assist all stakeholders involved in airport construction.

- o Case studies and reports from construction at ATL, ALB, BDR, and RDU highlighted the importance of early and frequent communication among stakeholders through projects that frequently begin several years before visible construction starts. NATCA representatives should work collaboratively with facility management to ensure that the ATO is ready for whatever impact may come.
- o The ACAC did not meet this week.

RNAV and PERFORMANCE BASED NAVIGATION (PBN): Dennis Kelly (PHL) is NATCA's Article 48 Representative working the criteria for RNAV and PBN procedures. Mr. Kelly's update for the membership is next.

- **ASR removal –** This is a new offshoot of procedure removal process that will probably become part of National Procedure Assessment (NPA).
    - o AJV-5 revealed that of the 200 plus ASRs, 100 are not DoD so are they being used? DoD says they are required to have the ASRs.
    - o Nobody seems to know and if there is even requirement anymore to run or use them.
    - o Civil airports may want to keep the procedures on the books for traffic count purposes.
- **NPA –** Here is a breakdown of the number and types of procedures that have to be maintained by AJV-5, which gives you an idea of why so much money is spent on maintenance as each procedure or line of minimum need to be checked every 18-24 months.
    - o Number of procedures (from FAA website on inventory summary)
        - SIDS 2100 6%
        - STARs 670 (520 Conv. 358 RNAV)
        - 2%, RNAV approaches 13,691 40% (LNAV, VNAV, LPV, LP GPS stand alone)
        - RNAV (RNP) 720 2%, ILS 1745 5%
        - LOC 1498 4%
        - NDB 694 2%
        - TACAN 15 .04%
        - VOR 2164 2%
        - LDA 33 .1%
        - ASR 221 1%
        - GLS 11 .03%
        - PAR 7 .02%
        - SDF 6 .02%
        - Circling 10,647 31%
        - Side Step 83 .02%
        - out of scope – ODPs 137, RNP Specials 4, VOR/DME RNAV 6.
    - o The SID numbers are inflated because many serve many airports and they are counted as individual procedures because each initial segment needs to be evaluated. STARs that serve multiple airports aren't the same because the inbound portion to the airports has already been evaluated whether it connects to an approach or a radar vector, which

doesn't need an evaluation. Circling minimums can be deceiving as well because some are the same as other minimums or serve multiple procedures.

- Costs per year: Flight inspection is $626 per procedure. Cost is the same regardless of type approach and is .33 hours per IFP. Average time to check RNAV procedures is 18 months. IFP average maintenance cost per line of minimum is $1908.39 based on issuing NOTAMs, reviewing for proposed obstacle in OE-AAA, amendments and periodic review (part of this is tree and vegetation growth and cell phone towers being put up). When added up this leads to an astronomical amount of money ($41 million/year not including flight check). There have been attempts to reduce costs and gain time by automating some stuff and reducing reliability on paper.
- A group will be put together to try to come up with some ideas/criteria to determine if circling minimums should be removed or not. They want to remove virtually all circling minimums because of the effort to have all airports having vertically guided approaches through RNAV. NBAA has an issue with this. There are also multiple efforts looking at this and needs to be combined. Circling approaches are required for instrument rating, CFI II airplanes and sometimes ATP. Reasons to keep are equipment variation, direction of approach, allows landing where there is no approach, sometimes minimums are better than Straight Ins, etc. PBN NAS strategy projects 138 airports losing circling minimums by 2020.
- **NSPP -** NEW Metroplex Procedures
  - o SoCal adds 6 RNAV RNP LAX, 1 RNAV SID LGB and 1 RNAV STAR NTD prepared for 3/31/2016 cycle but will not publish until 5/26/2016 publication cycle.
  - o SIDs/STARs/RNP: IAH moves 6 RNAV up-number SIDs from 10/15 to 12/10/2015 publication cycle. LGB adds 2 RNAV SIDs and 2 RNAV STARs, SMO 2 RNAV SIDs and SNA 2 RNPs, 1 RNAV SID and 1 T-route for 5/26/2016 publication cycle. LP/LPV – 211 Scheduled for 2016.
- **PARC NAV RNP to ILS -** This was a review of the briefing recommendations to the NAC on this subject.
  - o Highlights are:
    - ▪ low temperature operations
    - ▪ as close to a 2 degree descent gradient as possible
    - ▪ 5NM final or shorter
    - ▪ at or below a speed of 210 at the beginning of the RF or TF turn.
    - ▪ Design the RF turn first and overlay the TF method if needed for traffic
    - ▪ Design the remaining TF legs angle of 60 degrees each (3)
  - o The WG recommendations will be sent to the PARC SG in September for approval and then to the FAA. Formal draft criteria based on WG recommendations is in the draft 8260.58A.
- **RNAV Approach advertised on D-ATIS -** This is considered a demonstration project that has come from a request from RTCA as a result of one of the obstacles to PBN use and will be kicked-off 10/19. There is a list of 6 airports that will be asked to participate in trying to increase PBN usage by advertising RNAV approaches on the ATIS whether it is by themselves or in addition to the ILS.

- o The intent is to not get into a lot of questions, so just advertising 1 and if the pilot can't do it he'll tell you is probably the way to go. The tentative list is BOS, PHL, ACY, RIC, PNE and ILG.
- o The tracking of actual use will be the issue and having the information in the scratchpad would probably be the best. PHL uses this option now for inbounds to any towers they run traffic to.
- Attended ASR removal telcon, RNAV advertised on ATIS telcon, Weekly Service Center telcon, PFS telcon, JPCDP, PARC NAV RNP to ILS, PHL local union meeting, PBN Dashboard telcon and NPA telcon.

REMOTE TOWER at JYO: Keiron Heflin (IAD) leads NATCA's efforts at Leesburg Executive Airport (JYO) and the Remote Tower Data Collection. Mr. Heflin provided the information below for the membership on this week's activities.

- August 25, 26 and 27th made up the fourth week of passive data collection for the Remote Tower at Leesburg airport (JYO).
- The SME's were Brian Byllesby (TOA) and Todd Jones from (MSY).
- The weather was good VFR for the majority of the week while the SME's tested the remote tower equipment.
- Mr. Heflin has been continually impressed at the objectivity and candor the NATCA controllers bring to the table each week and this week was no different.
- The week culminated with a Task Force meeting on Thursday afternoon with NATCA, Saab, FAA, PASS, VSATS and JYO airport management in attendance.

PROJECT MANAGEMENT OFFICE (PMO): Jeff Woods (I90) is the Article 48 Representative to the PMO. Mr. Woods' report to the membership is below.

- Attended a TBFM Customer Forum Meeting at Mitre
- Attended a meeting with Dale Wright (S&T) to get caught up after being on Annual Leave last week
- Attended a telcon with Corrie Conrad (NATCA UIC) and her counterparts
- Worked issues with new TFDM Rep, D10 Voice Switch, Path Stretch component of TBFM, and TSAS key sites.
- Short week due to being on AL Monday and Friday.

NEXTGEN: Mel Davis (SCT) leads NATCA in accordance with Article 114 on NextGen. Mr. Davis' report for this week is below.

- NATCA NextGen Primary Activity this week was to travel to Colorado in an effort to understand their request for remote air traffic services.
  - o The FAA NextGen Office has been tasked with expending funds provided by the State of Colorado to explore technologies that might provide enough information to control air traffic at current non-towered airports in Colorado.

- The FAA NextGen Office team met with State of Colorado officials as well as FAA personnel from ZDV, D01 and the Western Service Area. Additionally, the FAA team visited Centennial Tower just to get a feel for what ATC looks like from a VFR tower perspective.
- The information gathered on this trip will be used to formulate a Concept of Operations and make site selection recommendations back to the State of Colorado. Once these two items are completed a comprehensive evaluation of current operations and physical infrastructure will be conducted.

NAS VOICE SYSTEM (NVS): Jon Shedden (ZFW) leads NATCA's efforts reference the NVS. Mr. Shedden's report for the week is below.

- Mr. Shedden observed the SRM panel at PCT on 8/26 and 8/27 regarding the decommissioning of their General Dynamics Emergency Communications System. This was a continuation of the panel from last week's panel on 8/17.

- **Meetings this week:**
    - NVS Leads meeting (program update)
    - NVS Human Factors Working Group (HFWG)
- **Other issues worked:**
    - Discussions with the Program Office and NATCA National regarding possible changes to headset availability
    - Coordination with LAX and Communication Engineering regarding their ongoing radio issues
    - Confirmation and coordination with FAA LR on the upcoming air traffic Early User Involvement Event (EUIE) on October 26th
    - NVS schedule update review
    - TX capable frequencies/unmonitored frequencies on NVS
    - Access Control List (ACL) functionality in NVS
    - Restricted Dialing Sequences on NVS

INTEGRATED DISPLAY SYSTEM REPLACEMENT (IDS-R): Richie Smith (N90) represents NATCA as the Article 48 Representative to the IDS-R program. Mr. Smith's report for this week is below.

- The results of ER2 testing at PHL were positive and the plan to move forward with ER4 keysite testing this week will continue.
    - Unfortunately for PIT they have been dropped from the keysite testing list pending a proven fix to the ACE-IDS interface issue.
    - This is unfortunate news for our brother Rich Fuga. Mr. Fuga was the original Article 48 representative for the IDS-R program and has spent countless hours working on the project and sharing his work with other facilities. Mr. Fuga will be retired by the time you read this update and he will not be able to throw the switch to turn NIDS on at PIT.
    - Many thanks go out to Rich for all of his hard work and dedication.
- Now on to the "bad" news. Last week's update contained the news of a proposed 54% budget cut to the IDS-R program in FY16.

- o With a loss of over half of the budget we don't need to address FY17 yet. Mr. Smith will be attending meetings at FAA headquarters this week to discuss every facility involved in the NIDS program and their future.
- To further complicate the ER4 installation issues the program office has acknowledged the fact that facilities utilizing the older version of the NIDS Operating System are facing system outages during their upgrade.
  - o NATCA is not pleased with this procedure and alternative methods must be explored as to not impact our workforce.

DATACOMM: Chad Geyer (ZLA) represents NATCA's bargaining units on the DataComm project. Mr. Geyer forwarded the information below for this update.

- This week representatives from SAN, CVG and JFK are in Oklahoma City to attend the operational try-out for the new version 12 PDC and CPDLC training as well as the TDLS Application Specialist training.
  - o This event will give the AJI a snapshot of where the training development is.
  - o If this event is successful, First Course Conduct (FCC) can be scheduled in October. FCC is the first time a training class or ELMS course is taken and credit for training is earned.
- Members of the DataComm SME team are in IAH and HOU this week to assist the local 48 representatives in the DCL functional verification (DFV).
  - o DFV is divided into two parts.
    - The first includes CPDLC testing with tech center avionics and certified technical pilots on prearranged flights.
    - The second is file and fly. This is where airlines that are using the CPDLC service file for and receive CPDLC clearances, however, voice read-backs are required to verify clearance information.
  - o File and fly continues until a facility declares IOC and accepts the service. At this point, clearances can be uplinked without voice read-back.

COLLABORATIVE DECISION MAKING (CDM): Ron Foley (ZOB) is the Article 48 Representative for CDM. Mr. Foley provided the information below along with Kyle Andrews (ORD) providing his monthly report on the Surface CDM activities. These reports are below.

- The subgroups will not meet until October because of a multitude of issues. The main issue, staffing at the command center.
  - o The next FCT meeting is scheduled for October 13th -16th at MITRE, focused on SFMA. SFMA is a new concept for FCT which has been presented to the CSG and is awaiting official tasking for our team. More information will be sent along with the agenda when those details are finalized.
  - o The other groups are TBD. Mr. Foley will advise of any changes in the group schedules ASAP.
- Surface CDM Report from Kyle Andrews:
  - o The August SCDM Stakeholders Outreach Session was held on August 26-27 at the ARJ-1200 Office in Washington DC and was attended by representatives from AAL, FEDEX,

UPS, SWA, NBAA, FAA, A4A and NATCA. Bernie Davis (AAL) described the ATD-2 meetings that took place earlier in August. With the introduction of NASA and ATD-2, the SCDM work from the last three years has to be translated/digested by NASA to work with their ATD-2 prototype. A concern is that decisions that were thought to be concluded by the HITLs and the P3 workgroups will be questioned and reevaluated. The problem with that is twofold:

- it will be an unnecessary redundancy
- NASA is not meeting with the the SCDM workgroup until October and doesn't plan on having regular meetings with SCDM.
    - Until these meetings take place, work for SCDM seems to be on hold.
- Electronic Flight Strips (EFS) has been determined to be an essential part of the ATD-2 project. AEFS is currently at CLE Tower but is having some problems. NASA has their own EFS platform that they might introduce to move forward at the timeframe needed (Spring 2016 for CLT). This brings up a concern about multiple EFS platforms being used in the NAS, or else AEFS just being done away with and the NASA platform being adopted system-wide.
- The above two items speak to an overall concern that the work SCDM is doing is not necessarily known or harmonized with the work NASA is doing with ATD-2. This could either result in inefficiency, where the SCDM work has to be reported to NASA and they adapt it after the fact; or simply a disregarding of the SCDM work if it doesn't fit the ATD-2 work.
    - Unless NASA and SCDM can more regularly schedule opportunities for information sharing, whether face-to-face or telcon, this will continue to be an issue.

AJV-7 (REQUIREMENTS): James Keith (D10) is the Article 48 Representative assigned to the AJV-7 Office. Mr. Keith forwarded the information below for this week's update.

- Met to discuss path stretch and path moving forward.
- Met with Dale Wright (S&T) and Robert Utley (S&T) to discuss representative issues.
- Met to review Terminal work package 1 virtual session.
- Tom Zarick (ZDV and Interval Management Art 48 Representative) and Mr. Keith attended IM-S work group meeting to discuss operational portion of con ops.
- Met with AJV-7 to resolve official time issue on terminal work package 1 virtual sessions.
- Mr. Keith will be in leave from 8/31 until Labor Day.

AIRSPACE: Jim Davis (PCT) is the NATCA National Airspace Lead. Mr. Davis and the leads for several airspace projects have provided the reports below.

- **Atlanta Metroplex**
    - Reviewed and Updated MSProject
    - Met with ZTL530 regarding new ATL SIDs
    - Finalized upcoming NCF briefing – 9/9/15
    - Finalized Southern Region Administrator – 9/18/15

- o Finalized briefing for ATL City Airport Manager – 9/28/15
- o Delta Meeting to discuss OPDs and TBFM impacts to block times
- o **Issues:**
  - A80 STARs (Platform) Training & Implementation (Summer 2015) – Postponed to Fall 2015
- o **Milestone/Activity—Completions:**
  - ZTL started metering part time to ATL on June 2, 2015
  - ZTL began full time ATL metering August 2, 2015
  - 06252015 Airspace Implementation
- o **Projected Milestone/Activity Completions and Risks**
  - 9/9/15 – NCF Briefing
  - 9/18/15 – ATL City Airport Manager Briefing
  - 9/28/15 – Meeting with ATL City Airport Mgr.
- o Submitted by Joey Tinsley (ZTL), Atlanta Metroplex Co-Lead
- **Phoenix OAPM Design and Implementation**
  - o 8/25-27
  - o Phoenix TRACON and Tower
  - o Continued design package development
  - o TARGETS clean up work
  - o Q-route telecom with ZLA and ZAB
  - o Travel logistics for P50
  - o Executive summary development
  - o Meeting with STAR's G4 phase one team at CHD about project overlap
  - o Review of initial environmental documentation
  - o Project tracker update
  - o Project review of open issues
  - o Mark Ostronic Phoenix Metroplex NATCA D&I Lead
- **SoCal Metroplex**
  - o The POCs did not travel; Rob Henry (FAA Co-Lead) and Mr. Gonzalez met at the Regional Office.
  - o Finalized the talking paper for the Regional Administrator for utilization during meeting with local elected officials about SoCal Metroplex. The document contains background and status information and will be posted on the SoCal website.
  - o Work continued to ensure the revised Publication Schedule is updated on the NSSP site.
  - o Program Office approved independent utility to correct discontinuity issues between LAS legacy procedures and SoCal Metroplex procedures. TARGET files and EA analysis need to be completed so that the amended procedures can be included in the 5/26/16 publication cycle.
  - o Coordinating with OKC to assist in developing a SMO RWY 03 approach for Category A & B aircraft that was dropped from development.
  - o Finalized the letter that was included in an email sent to local elected officials as specified by the Manatt Consultants. The email is for an invitation to participate in a government outreach on SoCal Metroplex to be conducted on Sept 1, 2015 at the Regional Office.

- o Provided a PPT with information on 2012 traffic flow, volume, current and Metroplex projections as requested by the representative of the 53rd District Congresswoman Susan Davis' Office.
- o SCT DEL SMEs completed review of chart cycles 2 and 3.
- o SCT POCs have completed about 90% of the training plan.
- o Automation specialists for both facilities met at SCT to address automation issues. Node reports for SCT Airspace were reviewed. Identified the need for at least 11 new FAVs. Created RamView files of SoCal procedures. Identified missing airports in the test NASDE. Identified issues during LAX configuration changes. Discussed fix/pair, SCT strip posting and T-route requirements.
- o ZLA POCs conducted a tour of the facility and answered Metroplex questions to Miguel Franco, Deputy Chief of Staff for the 29th Congressional District.
- o Submitted by Jose Gonzalez (ZLA) Article 48 Rep, SoCal Metroplex

- **Charlotte Metroplex**
  - o Leads worked at Charlotte airport offices
  - o Finalized coordination with CLT, ZID and ZTL for validation flights on 8/29/15 and 9/5/15
  - o Finalized Industry Day briefing. Briefing conducted briefing on 8/27/15
  - o Conducted by-weekly Implementation TELCON – all facilities are on schedule
  - o Worked pref-route issues
  - o TELCON with SWA to discuss concerns on new CLT STARs
  - o Worked on SWA concerns. We believe we are on solid ground with our designs
  - o TELCON with OSG on removing Satellite airports from FILPZ and PARQR
  - o **Issues:**
    - SWA has raised concerns about the PARQR and FILPZ STARs. We are gathering information and will follow up with SWA no later than Friday, September 11th.
    - Need to remove the Satellite Airports form the FILPZ and PARQR STARs. Coordinating with Environmental Specialist to ensure we do not impact the EA
  - o **Upcoming:**
    - 8/31/15 – Leads on annual leave
    - 9/5/15 – Leads at CLT TRACON
  - o Submitted by Bob Szymkiewicz (CLT), Charlotte Metroplex Team Lead

- **Las Vegas Metroplex Study Team (LASST)**
  - o Completed initial LASST STAR and SID design for NW quadrant LAS.
  - o LASST initial refinement of conceptual SIDs and STARS for all LAS quadrants.
  - o Worked on procedure compatibility for different runway configurations used
  - o at LAS.
  - o Review of matrix: 40 issues have been addressed in first two weeks of design.
  - o Next week LASST meeting in Las Vegas.
  - o **Upcoming Activities:**
    - Las Vegas Study Team Design – August 31-September 18, 2015
    - Las Vegas Study Team Second Outreach Meeting – September 22-24, 2015
    - Las Vegas Study Team Analysis – Mitre – September 29-October 23, 2015
    - Las Vegas Study Team Final Facilities Outreach Meeting – October 27-29, 2015
    - Las Vegas Study Team Final Industry Outreach Meeting – Nov 2, 2015

- - - Las Vegas Study Team Documentation Development – November 3-19, 2015
    - Las Vegas Study Team Report Due – November 20, 2015
  - o Submitted by Las Vegas Metroplex Study Team Lead Art. 48 Ron Myers (ZDC)
- NorCal Metroplex
  - o Stage 5A Post-Implementation work ongoing: positive feedback from both NCT and ZOA re: the DYAMD STAR into SFO (both facilities continue to get questions from pilots about the known disconnect with 2 approaches; questions expected to decrease as familiarity increases); other issues are being triaged real-time, as appropriate.
  - o Attended the Denver Metroplex I-SIM HITLs at ZDV. Provided NorCal Metroplex background information and observed SIM runs.
  - o Participated in the Weekly NorCal Telcon: discussed the post-implementation status of Stage 5A; discussed upcoming Lessons Learned at NCT Aug 31- Sep 1 and Core/POC Meeting Sep 2 (Wed).
  - o Weekly National Metroplex Telcon cancelled due to unavailability of participants (Wed).
  - o **Outstanding:** SoCal and NorCal Metroplex Teams still need to meet and discuss necessary changes to entry and exit fixes. Initial informational PowerPoint received from ZLA; ZLA and ZOA to work out agenda, necessary SMEs, availability of each team and location / type of meeting.
  - o **Upcoming:** Aug 31 – Sep 2 (NCT) Lessons Learned Meeting with SMEs and MTRE, followed by Core / POC Meeting; Sep 21 – 25 Metroplex Summit (DC); TBD: Meeting with SoCal Metroplex Team
  - o Worked 1 Operational shift for currency and staffing.
  - o Submitted by Amanda Hodge (ZOA), Article 48 Rep, NorCal Metroplex
- **CLE/DTW Metroplex**
  - o Met with D21 to restructure airspace for the final design and update the AIR-5 file to ready for the SMS in mid-September
  - o Draw some stick figure design for relocation of sectors within D21 in the new airspace configuration
  - o Telcons with ZOB on task list issues to include holding patterns, fix adjustments, tabled elements and other corrections identified during design and evaluation stage. This also included items with D21.
  - o Telcon with CSA safety on the upcoming plans for the SMS process in mid-September
  - o Telcon with CSA on project status and questions from staff. Issues covered where Environmental, Airway elimination, procedure timelines, SMS, F&E expenditures and etc.
  - o Telcon with small group of facilities on Metroplex's plan to eliminate unused airways that clutter the project area.
  - o Telcon with Toronto Center on lessons learned from cross border issue and Jeppesen chart coding. Also issues for the national ATSAP team on fix use.
  - o Finalizing a meeting with ZAU on remaining Metroplex issues.
  - o Updated the calendar and attendees for the upcoming meeting into October
  - o Week's ahead: 8/31-9/3 D21 airspace, 9/8-11 ZAU, 9/14-17 ZOB
  - o Submitted by Don Ossinger (ZBW), Article 48 Rep, CLE/DTW Metroplex
- **Denver Metroplex Design & Implementation**

- o August 23 - 27, 2015 – ATAC ISIMs at ZDV
- o This week the Denver Design Team completed our 2nd week of ISIMs at ZDV.
- o Tested the Northeast and Southeast arrivals this week.
    - Overall Mr. Thomas believes the ISIMs were successful at simulating what the facilities were looking for.
    - ATAC did a great job correcting issues and running their systems.
- o Both facilities were able to identify issues that will help in determining 8 or 16 STARs.
- o Next week (8-31 to 9-3) The TRACON and Center will meet at D01 to make a decision on 8 or 16 STARs. The Design Team has invited Industry as well as ATMs and FacReps from all facilities to participate in the discussion next week. This decision is still a pretty contentious issue but Mr. Thomas believes NATCA from all facilities will agree on a final outcome together.
- o **Upcoming Schedule**
    - August 31 – September 3 – 8 vs 16 Decision Week at D01.
- o Submitted by Chris Thomas Article 48 Co-Lead Denver D&I
- **Eastern Service Area PBN**
    - o Worked to finalize new fix names on the three BOS STARs (OOSHN, ROBUC, and JFUND/QUABN
    - o Waiting on simulation data from Lead Carrier to verify procedures at BOS are in final form.
    - o Reviewed TARGETS data on BOS procedures.
    - o Briefed Directors about concerns from UPS on SDF/ZID STAR redesign issues.
    - o Waiting on Lead Carrier to provide simulation data on SDF STARs so the team can finalize the design.
    - o Met with new ESA contract analyst support to review current projects, schedules, and tracking tools. She has suggested improvements for the ESA tracking which the Co-Leads are reviewing.
    - o Working with ZTL/ZME on publications of the SWFFT STAR amendments.
    - o Responded to NY TRACON request to reconsider a previously WG decision not to design a STAR with an increased climb gradient.
    - o **Upcoming Activities**
        - BOS telcon September 3 to review and finalize documentation.
        - Work with the BOS .41 WG staring in late September to finalize training plans, SMS, LOA/SOP, environmental and automation.
        - 8260.43 Rewrite meetings in OKC September 1-3 and October 20-22.
        - Projects being worked in ESA; RDU-RNPs, RDU-BLOGS STAR, BVT-RNP, PLB decommissioning-T route, and working with CSA on Q69/Q39 amendments in ZID.
    - o Submitted by Bill Wise (ESA), ESA PBN Rep
- **CSA PBN**
    - o Weekly OSG Management Meeting
    - o Weekly NATCA Service Areas PBN Telcon
    - o Final Coordination and Prep for KCMH Pre-.41 Meetings next week
    - o Weekly NSPP Telcon

- o Environmental data development for future NorTex Post Implementation publications
- o Weekly Project Status Telcon with AJV-14
- o North Texas Metroplex Meetings at AAL. Out brief on updated Benefit calculations by MITRE and HQ. Discussion about possible transition to .41 process. Another meeting expected.
- o TetraTech Weekly Coordination Meeting…Port Columbus (KCMH) Agendas and final meeting preparations.
- o Coordination/Discussion with AJV-14 re: Hand-off of MSP Post-Implementation Activities
- o Continued Q39/Q67/Q71 Research and coordination for ZID requests
- o Meeting with NorTex Project, CSA OSG, FAA HQ (Metroplex PO), SWA, re:NRTAY RNAV STAR and associated note changes
- o **Upcoming Activities:**
  - ▪ Columbus, OH (KCMH) Preliminary .41 Meetings---September 1-2, at Columbus, OH
  - ▪ AJV-12 Visit to CSA---September 14-18, Fort Worth, TX schedule TBD
  - ▪ New TetraTech Lead meetings with Central OSG---September 15-17, Fort Worth,
  - ▪ Metroplex Study Team TX schedule TBD
  - ▪ Metroplex Summit---September 23-24, @MITRE, Washington, DC
  - ▪ Chart Date---October 15, 2015 Central facilities publishing include KSAT, KMDW, KORD, KMSY, and KAUS
- o Submitted by CSA PBN NATCA Art. 48, Brent Luna (ZFW)
- Metroplex Study Team Rep
  - o Held meeting at D10 on August 28, 2015 with SMEs from D10 and ZFW to coordinate with SWA on amendments to the NRTAY STAR into DAL because of D10 safety concerns. SWA agreed to take the TARGETs file and flight sim the procedure. Once we have confirmation of the fly ability of the procedure, we will submit to FPT for publication in May 2016
  - o Attended meeting at FAA HQ to discuss possible changes and enhancements to Metroplex post-implementation activities
  - o Attended meeting at FAA HQ to discuss North Texas Metroplex post-implementation data in advance of the meeting with industry in Dallas
  - o Attended meeting at FAA HQ to discuss Atlanta Metroplex OPDs reference possible changes to throughput at ATL
  - o Attended meeting on August 27, 2015 to share post-implementation data analysis on North Texas Metroplex and to discuss future amendments to the NTX procedures through the 7100.41 process
  - o Attended Las Vegas Metroplex Study Team meeting at Mitre to observe the team as they develop the notional concepts for the Las Vegas Valley
  - o Multiple telcons and meetings with Metroplex Program Manager, NATCA Study Team Leads, and Mitre support to discuss Las Vegas Study Team activities, calendar, and future schedule
  - o Participated in multiple telcons regarding North Texas Metroplex post-implementation activities

- o **Upcoming Activities:**
    - Las Vegas Study Team Design – August 17-September 18, 2015
    - Las Vegas Study Team Analysis – September 29-October 23, 2015
    - Las Vegas Study Team Initial Outreach Meeting – August 11-13, 2015
    - PBN/RAPT Orders Meeting – OKC – September 1-3, 2015
    - Las Vegas Study Team Second Outreach Meeting – September 22-24, 2015
    - Metroplex Summit Meeting – September 22-24, 2015
    - Las Vegas Study Team Final Outreach Meeting – October 27-29, 2015
    - Las Vegas Study Team Final Industry Outreach Meeting – Nov 2, 2015
    - Las Vegas Study Team Documentation Development – November 3-19, 2015
    - NATCA Art. 48 Tech Rep Meeting – New Orleans – November 17-19, 2015
    - Las Vegas Study Team Report Due – November 20, 2015
  - o Submitted by Metroplex Study Team Art. 48 Ed Hulsey (ZFW)
- **National Design and Implementation Rep**
  - o Attended a meeting with Josh Gustin (PBN Manager) Frank Black (Deputy Director of Airspace Services) Jim Davis (Natca Airspace Rep) and Ed Hulsey (National Study Team Rep) to discuss issues that occur after a Metroplex site closes down.
    - Discussion revolved around on how amendments to Metroplex procedures will be handled after the Metroplex team stands down (typically 7 months after implementation).
    - The group also discussed that this same issue will probably exist with non-Metroplex projects as well.
    - The group discussed "after care" after projects are complete as well as how would this team fit into the NAS/NAV strategy for PBN.
  - o Attended a meeting with Robert Novia (PBN Lead Coordinator), discussed the Atlantic Coast Route Plan (ACRP) and how they will interact with the Florida Metroplex team.
    - Also discussed an ICAO Caribbean effort that is suppose to start sometime after the New Year. Mr. McKelligan told Mr. Novia that he needs to inform whoever is going to be in charge of this group be made aware that the Florida Metroplex will be 100% "pencils down" in May and allot of routes will be designed in the Caribbean and the ICAO initiative might be able to tie into these routes.
    - There should not be "dual" efforts occurring at the same time, Metroplex is funded and supported while the ICAO initiative is not.
  - o Attended a meeting in Dallas with SWA/AAL to discuss the process for talking care of amendments now that the Metroplex team has been disbanded. AAL/SWA will get together with the facilities and put requests into the IFP gateway (7100.41 process) and any major design will be packaged for a Metroplex 2 type effort.
  - o Mr. McKelligan was briefed by CLT leads on SWA stating that procedures being implemented in OCT were un-flyable. The procedures have gone through the complete process and were flown in the simulator but the team looked at SWA concerns and after talking to lead carrier (AAL)and AJV-5 as well as conducting additional research that SWA concerns are un-warranted.
  - o Submitted by Mark McKelligan (ZBW) National D&I Rep

- **NATCA National Airspace Rep**
  - Participated in the weekly Telcon with Frank Black, Deputy Director of Airspace Services
  - Attended meeting at FAA HQ to discuss possible changes and enhancements to Metroplex and Non-Metroplex post-implementation activities
  - Attended multiple Telcons concerning Ntexas post implementation activity
  - Participated in the weekly Telcon with John Brandt, Mitre Airspace Lead
  - Finished logistics for the next NATCA Airspace and Procedures Committee meeting in DC on September 9th and 10th
  - Submitted by Jim Davis (PCT) NATCA National Airspace Rep

ADMINISTRATIVE SOFTWARE: Rich Santa (ZDC) is the Article 48 Representative for the NATCA Membership on Administrative Software. Mr. Santa's report for this week is below.

- **A-SISO**
  - Installed at ZHU last week and are planning for additional facilities after Labor Day.
- **FALCON**
  - An update was made to the most recent version that added minor enhancements.
- **WMT**
  - An update has been tested that allows for IE11 compatibility. Expect to see it released in a few weeks.
  - This update changes the look of the program slightly.
- **CEDAR**
  - The parties will meet again to work on the MOU this Thursday.

Dale Wright
Dale Wright
Director
Safety and Technology