NATCA Safety & Tech Update
Week of July 11, 2016

LEAN MAINTENANCE AND REVALIDATION (LMRP): Tim Travis (ZID) is the LMRP Article 48 Representative for NATCA. His update for the membership is below:

> We met in D.C. the week of the 26th of June. We were informed the LMRP Project Manager is retiring due to health concerns. The status of the program is not known. We looked at several Navaids and ranked them on availability, cost, location etc. Tech Ops have decided they need to get lean and are looking at ways to cut cost. I'm not familiar with the relationship between NATCA and PASS but it seems strained at HQ.I heard from a Tech there is a major problem with LED's that are used in aviation related items due to frequency interference and that pilots can't see the lights because LED's only project light in one direction. Tech Ops is re-starting an awards program for suggestions that save the FAA money. They will be announcing this shortly if approved.

TERMINAL AUTOMATION MODERNIZATION REPLACEMENT (TAMR): Aaron Rose (NCT) is the TAMR Article 48 Representative for NATCA. Below is the report from the TAMR Project for the past month

> **Deployment**
> The TAMR program is starting to transition huge numbers the ARTs IIe facilities to STARs. Just in this reporting period numerous sites have achieved Initial Operating Capability (IOC) to include:
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> |---|---|
> | Sioux Falls, SD | 6/13 |
> | Fort Smith, AR | 6/20 |
> | Palm Beach, FL | 6/22 |
> | Colorado Springs, CO | 6/27 |
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> This is an amazing achievement considering the amount of coordination and collaboration that has to take place just to transition one facility much less four. In the coming month we are looking forward to Tallahassee, Fairbanks, Wilkes-Barre, and Roswell. Also, an upgrade from G1 legacy STARs to G4 processors at Tucson. Congratulations NATCA TAMR team. Without the teamwork and dedication the NAS would still be in the 20 century.
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> **Article 48 meeting June 14**
> Mr. Rose met with outgoing article 48 rep Mitch Herrick and new TAMR program manager Lisa Bercher who replaced Jeff Yarnell. Topics included the Common Terminal Digitizer (CTD) and the effects of aging ASR8 radars in the NAS. Surveillance radars located in Southern California to include ADSB and issues of compliance from users. Merge training at STARs facilities. Had

a productive meeting and stated concerns to Jim Linney, Director Air Traffic Systems, reference TAMR and a path forward after deployment.

The CTD is a hurdle for TAMR deployment because of the aging infrastructure and differences between digital/analog radar feeds. All ASR8 radars transfer data via an analog feed and STARs will only accept a digital feed. The CTD converts this analog signal to digital. 41 sites that need to transition have ASR8 radars that need to be digitized; unfortunately the CTD is behind schedule and in the process of being tested. Most ARTs IIe sites transitioning with an ASR8 have been moved to the back of the deployment waterfall. Testing is ongoing.

Eric Labardini (NATCA ART 48 SBS) attended the meeting to give a report reference ADSB and surveillance issues in the Los Angeles basin. We are hopeful that with some adjustments to ADSB compliance and radars, SCT's radar presentation will improve.

For legacy STARs users such as MIA, PHL, and S46 a new TAMR software drop is being key sited. This is called the merge build where two different software lines converge into one. Training will follow in the next month or so and TAMR training personnel will assist with the immense change to ensure controllers understand and glean added benefits within STARs automation.

December of 2019 is the scheduled date of last deployment of STARS to the NAS. With this comes the question "What happens next?" Answers: Support in realizing what the system is capable of doing at each facility. We are pushing to provide in-depth knowledge to facilities both large and small on capabilities to make OUR JOB EASIER. Incorporate new tools such as Terminal Spacing and Sequencing (TSAS) into the STARs system and into facilities. Terminal Automation after the deployment phase is over will have plenty of work left to do.

The Big 11

What does the phrase "The Big 11" mean? ARTs IIIe facilities that have transitioned to STARs. Big news this week for SCT was their declaration of Operational Readiness Decision (ORD). This means SCT will decommission the ARTs IIIe and remove it from the building, leaving only STARs. SCT joins D10, D01, NCT, A80, M98, SDF, and T75 in declaring ORD. Only N90, PCT, and C90 are left. This is a huge accomplishment for the TAMR program and NATCA's involvement is key to ensuring NextGen technologies move forward.

Long Term OSF Training

Mr. Rose received news on June 15 from Troy Barr (NATCA OSF Rep) that the yearlong battle with the agency had been won reference long-term training.

In the past the automation specialist that adapt our software and make the system purr never received formal training. Troy Barr and Michael Tate (Denver OSF) both approached NATCA for help. The agency agreed that mistakes were made in the past and after a meeting at the Raytheon facility in Los Angeles made the right choice and coughed up some money. Michael Tate, Candy Barr, and Keith Duffy (All NATCA OSF Specialist) attended the three-day meeting and composed the training document to be used. When new systems come online such as TSAS the OSF training will be updated prior to adapting in an operational environment.

NATCA TAMR Software & Engineering Report
Doug Peterson (D10)

Significant events in software and systems engineering for STARS and the TAMR Program over the last month include, MSAW/CA activity, R4 software training, strategic software build planning, and software key sites.

Since installing STARS at Chicago (C90) and New York (N90) the number and frequency of Minimum Safe Altitude Warning (MSAW) and Conflict Alert (CA) alarms has become a high priority issue. C90 reports a significant increase in invalid alarms. Preliminary investigation suggests that the current C90 STARS adaptation may be producing 50%+ more total alarms than CARTS. Adaptation proposals are being considered at the site.
A small percentage of false alarms will be corrected by the "MANCON" bug fix early 2017. N90 had an event with aircraft in close proximity that would have generated an alarm in CARTS, but did not in STARS. NATCA supported a change in CA software processing that would trigger an alarm under these conditions. That software has been installed and is under live key site operational testing at N90.

STARS S6 baseline Revision 4 software (R4) represents the first and biggest step in merging the three simultaneous STARS software baselines; Legacy, TAMR G4 (S6), and ELITE, into a single common product. R4 was scheduled for key site testing on ELITE and legacy baselines in June, but because of deficiencies in Air Traffic software training material, Houston, Miami and Norfolk were not able to complete operational testing. Daytona (DAB) and Midland (MAF) are operational on the new software. A revised training package is being completed this week and should be available to the field within the next 10 days.

The TAMR Program Office is working with Second Level Engineering to institute new software build planning processes. Because of the extremely rapid pace and huge volume of software changes driven by TAMR over the last 5 years, this has been done very much on an ad hoc and emergency only basis. The Software Build Planning team has agreed on a plan to skip field

delivery of R5, roll the final software merge elements into R6 for delivery in mid-2017. NATCA has participated in the first two Software Build Planning meetings and will be a key stakeholder going forward in a more structured and purposeful way.

The most current STARS software available, S6.R3c.D7a has been key sited at PCT and is running at Chicago, Denver, Northern California and Minneapolis. The updates in this build, which will include the MANCON fix and three other high priority fixes for N90, PCT and SCT, will all be merged into S6.R6. S6.R6 will combine the three software baselines into one and the agency will realize better efficiency maintaining software.

NATCA TAMR Deployment Report
Scott Robillard (K90)

The NATCA deployment team continues to work through several very difficult issues as we progress through three different types of deployments:
G1/G2 to STARS G4 for large TRACONs and Towers
G1/G2 to STARS G4 ELITE for midlevel TRACONs and Towers
ARTS IIE to STARS G4 ELITE for TRACONs and Towers
Each transition has its own unique challenges and requires a robust team of SMEs to help the agency navigate the difficult waters of an extremely complicated and diverse NAS.

Phoenix Tracon (P50): Site preparation and equipment delivery has begun. In order to transition both systems (STARS G1 and STARS G4) need to be running in parallel. During site survey and evaluation personnel discovered a lack power panels to wire redundant systems and new panels would need to be installed. Issue: You need to turn the power off to install additional panels; this requires coordination between many entities. The TAMR NATCA Team is working with ZAB, P50, PHX, Tech Ops, Engineering Services and the Program Office to help devise a plan that mitigates risk, provides the required services to the user and protects the members at all three facilities. This is not an easy task.

Tallahassee (TLH): ARTS IIE to STARS G4 ELITE transitions always come with some complications. Tallahassee has a few more than others; fluctuating power from the power company, poor lightning protection, and an analog ASR8 that is being digitized by a TDX-2000. These issues contribute to an uncertain IOC date. As of now, the IOC of July 12, 2016 is a GO. A true GO-NO-GO call will be made on July 11th after a monumental effort over the weekend to correct inefficiencies with power and radar issues. NATCA SMEs are on site and coordinating with the agency to ensure safety is the first priority.

Fairbanks (FAI): Solutions to the Long Range Radar (LRRs) issues have been found and IOC is progressing forward. FAI is a site that uses two DOD LRRs that need to go through a number of security systems prior to reaching the FAI facility.

Indianapolis (IND): IND is transitioning from STARS G1 to STARS G4 ELITE. NATCA, the program office and IND are working closely to ensure that the size of the STARS system installed fits the needs of the facility in the future.

Merge Build and Merge Build training
One of the underlying goals of TAMR is to get the entire terminal NAS onto one software baseline. Within the program, this is called the Merge. To accomplish the goal, NATCA partnered with the tech center, Raytheon and TAMR PO to build a Merge training program and waterfall. The method of rolling the merge build out is to use NATCA National Reps to train cadres in each facility to train the Merge Build. In June, NATCA and the PO brought MDT, PHL, ACY and GEG to the tech center to receive Merge Build training. We within the TAMR program used this opportunity to train our SMEs. NATCA and the TAMR PO are jointly developing a Merge Build Deployment schedule.

Common Terminal Digitizer (CTD)
If there is one Achilles Heel for the STARS waterfall, it is sites with an ASR8 that have not previously been digitized with a TDX-2000. Over the past 3 years NATCA has been deeply invested in the development of the Common Terminal Digitizer (CTD). Of the 41 ASR8 radars in the NAS 23 of them have no digitization and have moved to the tail end of the waterfall. Issues during early testing revealed a design flaw. This revelation creates an interesting problem: the CTD has not completed DT&E and has not even started OT&E. NATCA has pushed for a user evaluation to be completed and for it to be determined suitable for use in the field. However, the first units have been delivered to the key-sites (ROA and RFD) and a group of post key-site units are preparing for shipment. NATCA reached an agreement with the CTD PO to keep the installation schedule progressing with the knowledge that the redesign needs to pass testing at the WJHTC.

TIME BASED FLOW MANAGEMENT (TBFM): Eric Owens (I90) is the Article 48 Representative for TBFM. His report to the membership is below:

June 6-16, 2016, TBFM National Ops Team members were at Denver Center (ZDV) and Kansas City Center (ZKC) to assist with implementation of Adjacent Center Metering (ACM) from ZKC to ZDV. This effort was successful and the ZKC controllers appeared to be comfortable with the use of TBFM and having times on the glass.

The week of June 20th, Ops Team members attended a Strategic Flow Management Application meeting at MITRE. This program is very early in the concept development phase but when fully developed and implemented has the potential to pull the 3T programs together.

The week of June 27th, I attended a Terminal Sequencing and Spacing (TSAS) meeting in DC. We agreed to have meetings every other week until we get the requirements fully developed. TSAS will be key sited at Seattle TRACON in 2019. If everything goes well at Seattle TRACON, we will install at Denver TRACON six months after key site. The TSAS Ops Team is planning on visiting Seattle TRACON in September 2016 and Denver TRACON in October 2016 to begin discussions with the facilities. In addition to TSAS, we also had Ops Team member at MITRE to assist with the ZDV Metroplex project.

We did not travel anyone from the TBFM National Ops team the week of July 6th. However, this week we are supporting a GIM-s install at ZKC, we are evaluating Path Stretch at MITRE, and we have a TSAS meeting in DC.

Terminal Flight Data Manager (TFDM): Matt Baugh (IAH) is the TFDM Article 48 Representative. His update for the membership is below.

Some big steps for TFDM this past month. First, on Wednesday, 6/15, the Joint Resources Council (JRC) approved the approximately $795M Final Investment Decision (FID) for TFDM. One action item was taken from the meeting and that was to return to the JRC in late 2017 with a status on Build 1 development and preparations for Build 2.

The second step came on Wednesday, 6/29, when the team was notified of a contract award. Lockheed Martin won the contract, with SAAB Sensis as its major subcontractor. The next step is to meet with the contractors and discuss timelines, testing, demos, etc.; this meeting is scheduled for 7/19-20.

Advanced Electronic Flight Strips (AEFS)

Terminal Second Level Engineering (TSLE) continues to work on both an emergency build to fix latency issues as well as backend server problems, and a major overhaul of the most recent 5.3.0.3 build, now due out sometime in January. That build, if it passes TSLE's testing, will go to Operational Testing & Evaluation (OT&E), which AJV-7 (Requirements) will use as a system suitability call. The TFDM team has been working over the last several weeks to build a robust testing script to simulate an actual tower. With the acquisition of ERAM in a box, we believe the test will afford us at least 90% of a live traffic scenario. This testing will cover 2 weeks and

will require as many as 8 SME's to travel to the Tech Center to assist with each day of testing. A request for those SME's should be sent out within the next few months.

We also received word from AJI-232 (Training) that validation activities have been completed for AEFS ATC training; meaning AEFS now has an official training guide.

- **PHX**
  - Installation of the training system in the TSS lab was done the week of 6/20. The surplus of old equipment was removed from the towers simulator room and shipped back to the tech center.
- **CLE**
  - Testing of the emergency release build was scheduled for the week of 6/20 but testing was canceled because it still failed the TSLE testing. Further testing is planned for the middle of August, assuming it passes the TSLE testing.
- **EWR**
  - Nothing new
- **SFO**
  - Installation of the servers and running of the cables in the new tower will take place the week of August 8th. The newest build still won't be ready until sometime in January but installing now means all we have to do later is simply plug in the monitors.
- **LAS**
  - Local adaptation work began and a training system was installed in the TSS lab the week of 6/13. With these two steps completed, the next step is to run cables and install servers in the new tower. There will be no monitors installed upstairs in the new tower until the system can be proven to be safe and effective in an operational environment.
- **CLT**
  - A site survey was conducted on June 16 in order for TSLE and the facility tech ops to develop a plan for eventual equipment installation.

SWIM Visualization Tool (SVT)

A configuration control board (CCB) meeting was held June 16th to look at prioritizing the additional features list for any future builds. The agency got back with a cost and time estimate for each but it appears that, for the time being, due to a lack of additional funding there will be no additional features added to the system. We will continue to look for ways to pay for such

functions as pref-sets, auto-offset, and filtering by destination airport, but at this time it doesn't look as though that will happen this year.

Operational Contingency & Continuity office (OCCO): Tammy Norman (ZTL) is the Article 48 Representative for this project. Ms. Norman's report for this month is below.

The OCCO has identified 5 Phases of Work:

Phase 1: EnRoute in support of EnRoute: Most of this phase was conducted by the Temporary Operational Contingency Office (TOCO). The office was created based on contingency needs identified by the major ATC-0 events of ZLA, ZAU and N90. First, the 1900.47D was update to the .47E to include the divestiture of airspace during ATC-0 events. CONUS EnRoute centers and San Juan were brought together to create divestment plans to support each other during these outages. The final part of Phase 1 is continued by the OCCO, validating technical requirements. The OCCO's requirements team is visiting each facility to identify their needs.

PHASE 2: EnRoute in support of TRACONs: The OCCO hosted a planning meeting in June which included individuals from Air Traffic, Technical Operations, 2nd Level Engineering (ERAM/STARS), System Operations, Safety and Technical Training, and the OCCO Core Team. This group is now the Operational Planning Team (OPT). This group was selected for their knowledge and expertise to develop and implement Traffic Management Initiatives (TMI) to Baseline Tier 1 Facilities. They created a basic scenario and approach that each ARTCC could use to estimate its capability to execute the underlying TRACON's OCP. The OCCO's leadership (ATO VP's) has been briefed on the planned approach. These exercises will begin in FY 17.

The OCCO has attended a local resiliency meeting, and will attend a national meeting in DC in August with the National Enterprise Operation (NEO) group. These meetings are to establish ways to communicate work and establish goals to support the resiliency of the National Airspace System (NAS).

The OCCO will also attend a briefing at the Command Center with the National Customer Forum. This meeting involves the aviation industry. We continue to have monthly meetings with the Command Center. The OCCO welcomes every opportunity to share information and gain knowledge to help in contingency, continuity, and the resiliency of the NAS.

VOR MINIMUM OPERATING NETWORK (MON): John Vogelsang (P31) is the Article 48 Representative on the VOR MON project. His update is below.

> The next big step in the VOR MON program will be taking place shortly. The Federal Register Notice (FRN) for the VOR MON program should be published within the next month, which will release the program waterfall to the public. We anticipate quite a bit of public input once the waterfall is released. Another issue that is a hot topic right now is the process that Tech Ops will be using to keep the remaining VORs in service and making sure that repairs are accomplished in a timely manner as there will not be very much overlapping coverage in the MON. Initially they said they didn't plan any changes to the way they classify needed repairs to VORs but there has been a lot of discussion on the need to keep the MON VORs up and running as much as possible. We are still examining the results of several recent Flight Checks to determine if the proposed 77-mile service volume at 5000 feet is going to be realistic.
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> The VOR MON controller familiarization video is still not ready for review by NATCA yet. We had hoped to see the script as well as the actual video last month but delivery of those items has been delayed. The video was initially supposed to be released via ELMs but that has now changed. A final decision hasn't been made but the most likely possibility will be via a webinar.

WEATHER: Matt Tucker (ZTL) is NATCA's Article 48 Representative for Weather. His update for the membership is below.

> Weather and RADAR processor (WARP)
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> The current upgrade for WARP has completed factory and site acceptance testing at the tech center. In addition to the hardware testing the system has undergone one of two meteorological evaluations, the first one was a review of 10 test cases that were selected to look at specific types of weather events that happen in the NAS. This evaluation has been ongoing for almost a year as HARRIS and UNISYS delivered the test cases to the Tech Center. A demonstration of 6 of the 10 test cases took place at the tech center to validate and manipulate the mosaics to make sure they were suitable for deployment to ERAM. The national deployment of the upgrade will start at ZTL, ZDC, and ZAU the end of August with completion of the deployment by mid November. The first Mosaic to be deployed will be the all data mosaic, which will have some clutter still in the mosaic. This mosaic will be replaced with the high confidence mosaic by January. The high confidence mosaic is still under going metrological evaluation; so far the mosaic far exceeds the expectations.
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> Offshore Precipitation Capabilities (OPC)

The FAA started a field evaluation of OPC at ZMA and ZHU in the oceanic sectors. This evaluation has the OPC generated mosaic displayed on the large WARP displays in the ocean areas. The product is a RADAR proxy rendered from lightning, satellite, and machine learning. Operational information is being gathered to determine wither the produce is suitable to proceed in the process to include the OPC mosaic into the national radar mosaic to be put on ERAM. The test is scheduled to continue through the end of July. Once the report is completed the decision will be made to proceed in getting the mosaic to ERAM.

NextGEN Weather Processor (NWP) and Common Support Services-Weather (CSS-WX)

NWP and CSS-WX have both achieved Preliminary Design Review (PDR), and CSS-WX has completed Critical Design Review (CDR). Both programs are conducting a lot of human factors work to get the basic interface and product descriptions documented for Raytheon and HARRIS. This process has changed as originally the contractors were doing the description documents but are now being done by the agency. Both programs have had human factor workgroup meetings for maintenance and control functionality and NWP has had one meeting for the initial design meeting for the Aviation Weather Display (AWD). The AWD will be replacing ITWS, CIWS, and WARP terminal in all domains including the command center. The AWD is being designed from scratch and will configurable for each position that will be getting a display, i.e. ATCT TMC, TRACON TMC, Arrival TMC in the ARTCC. All users will have the ability to save configurations to allow easier use. Training for the AWD will be more than just teaching how to access the products but also how to use the actual weather products which will be a new direction for the weather programs.

Weather Evaluation Team-Collaborative Decision Making WET-CDM

The WET team is currently running the Collaborative Aviation Weather Statement (CAWS) summer demo and evaluation within the CDM community. There have been a number of issues that have come up this year due to confusion on how it should be used, when it should be issued. The team has been discussing ways to improve the understanding of the product and making it a lot more impact based not just weather based. The goal is to have a forecast that will only show weather that will have an actual impact on NAS operations, i.e. playbook or TMI was generated because the CAWS showed an impactful weather event. The Tech center is making site visits at a number of facilities to observe how the CAWS is being used in the field and then decisions will be made on where to take the product for the next convective season.

Surface Weather system (SWS)

The SWS is replacing the old F420 wind sensors as well as the wind measuring equipment (WME) with new state of the art wind sensor, temp/dew point, and a triple redundant altimeter sensor. The system will replace the F420 wind dials with either a 10-inch or 8 inch display depending on space the facility has. Money has not been allocated to do console modifications so the display is designed to cover the holes left by the F420. These displays are slat wall compatible. At facilities that are using WME or wind shear system this will be a mostly a behind the scenes replacement as the wind will be displayed on the current display. The SWS is compatible with ACE-IDS and IDS-R. SWS are currently being deployed and sites that will require new displays are being delayed due to an earthquake that damaged the plant that makes the glass for the displays.