The Local E Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

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Why SBE?

Did you know that Crawford Broadcasting Company is a sustaining member of the Society of Broadcast Engineers (SBE)? We are, and the reason is that the SBE is more and more *the source* for technical education in the broadcast industry.

Think about it... if you knew of a young person that had interest in a career in broadcast engineering, where would you send that individual for training?

When I was coming up in the business, even community colleges offered technical training courses geared toward broadcasting. Some of my training came from Amarillo College, which had its own radio and TV department, including a full-

power NCE-FM station and a TV station carried on the local cable system. The chief engineer of those stations was the instructor in the technical courses, and indeed I learned a good bit from him. It's likely that there are still a few such community college programs in existence – and as far as I can tell, KACV-TV and KACV-FM are still operating from studios on the Amarillo College campus – but those are few and far between.

There are otherwise few schools offering curricula targeting broadcast engineering. CIE Institute of Electronics still offers its Broadcast Engineering course. Amanda and I are alumni of "Carl Smith U," and I know of others in the business who got their initial training through CIE.

We tip our hat to those few programs that are still in existence and are appreciative of their ongoing efforts, but the reality is that they are pitifully rare. As such, the youngsters coming into our business, few as they are, are largely coming in through related career and training paths because of this scarcity.

SBE. Statining Member

Over 40 years ago, I first joined the SBE, Chapter 67 in Dallas. In those days, the SBE was (or seemed to me to be) more of a social organization as its name suggests. It did provide some valuable ancillary services, such as frequency coordination for STL and RPU operations, and we often got to meet

manufacturer reps at local chapter meetings. It was for the most part a mechanism for what would later become known as "networking" that that had value. Some of the contacts I made those decades ago are still in my virtual address book today.

Through the years, the SBE national organization began to see the need for education and certification of broadcast

engineers. The certification program in particular has gained national recognition, and it has grown and adapted with changes in technology.

More than a decade ago, I was privileged to serve a term on the SBE board of directors, and for much of that time I was chairman of the education committee. During that time, we launched the SBE's "Online University," providing a new source for primary education in the broadcast engineering field.

In the years since, the education committee has continued to develop materials and opportunities for continuing education. Of late, the "webinar" has become the platform of choice for ongoing technical education. In the last year, I have sat in on many such sessions. Some have been refreshers, providing updates to existing knowledge. Others, however, have taken me from knowing nothing about a particular topic or technology to being fairly well versed in that subject.

Do these educational opportunities have value? You bet they do. And where else can you get that kind of learning?

As noted above, it's for these reasons that Crawford Broadcasting Company is a sustaining member of the SBE. We support the organization because it provides our company with educational opportunities that simply are not available anywhere else. We support it because in its certification program it provides us with a screening and measuring tool by which we can evaluate the skills and knowledge of our technical staff. We support it because it provides networking opportunities in the technical realm that simply cannot be had by any other means.

Until a few years ago, educational opportunities for SBE members and non-members were offered a la carte. Members could purchase a "seat" for a particular program or webinar at a discounted member rate, and non-members could avail themselves of the same opportunities at a higher cost. This wasn't a bad way to go, but it probably discouraged wider participation because of the ongoing costs.

In 2018, the SBE began offering the "MemberPlus" option in which membership can be activated or renewed at a higher annual cost, and those taking advantage of that have access to over 90 archived webinars plus the many new webinars offered each year at no additional cost. The breakeven point is less than the cost of two webinars purchased a la carte. For the past years in which I have opted for the benefits of MemberPlus, I have attended just about every webinar offered that was of interest to me. I have a stack of certificates in my office testifying to this participation.

Yes, I am beating the drum a bit here for SBE MemberPlus. It's a very good deal, and I highly recommend it to anyone in the technical side of our industry that wants to stay on top of emerging technologies and build their skills.

While I'm at it, I also strongly recommend SBE certification. Why get certified? If nothing else, it shows your commitment to the industry and to maintaining a certain level of demonstrated proficiency. Certification is not a one-and-done passive activity. Those attaining any level of certification must meet certain criteria in terms of ongoing education and participation to recertify every five years. As an employer of broadcast engineers, a person's certification level and the maintenance or advancement of that certification speak volumes to me about that individual's commitment to the job and professional growth.

So as we start a new year, I would encourage any of you that are not SBE members to

become members and get plugged in. With so many chapter meetings virtual these days, it's easier than ever. I would encourage you to take advantage of the MemberPlus option along with its many rich educational opportunities, and I would encourage you to get certified, increase your certification level or add a specialist certification. If you do any of the above, circle back around this time next year and tell me if it was worthwhile. I know you'll say it was.

I might add one more suggestion: get involved in a local chapter. You will meet and get to know people, and those relationships will have lifelong value.

And if you're so inclined, get involved in chapter or national leadership. The opportunities are many. Did you know that Amanda Hopp, our Denver market chief engineer, is the chairman of SBE chapter 48? In that role, she has done a great job of putting together virtual meetings and lining up guest speakers, each of which bring something of value to our membership.

Not a chapter in your area? Just let Amanda know and she will add you to the SBE-48 email list so you can virtually attend that chapter's meetings.

So if you haven't already, join up, get certified and take advantage of the many educational and networking opportunities the SBE offers.

Cybersecurity

I won't go into detail here, but we are in the process of really tightening up our cybersecurity company wide.

We will, in the coming months, be doing away with most cloud-based remote access devices, replacing them with secure, encrypted VPN connections to our networks. This will put our remote users, in essence, behind our firewalls, and as such that will require that we also tighten up security on any and all computers being used to remotely access our networks. This includes personally-owned computers. We simply won't allow computers which are not properly protected to our company standard to make the connection.

We have found and purchased licensing for a VNC platform that will propagate sound to the remote computer, which will permit some audio editing functions. And we have upgraded our antivirus/anti-malware package to the best available.

More on this later this month, but be prepared to make changes. Yes, there will be inconvenience, but we're willing to put up with some inconvenience for the sake of security.

The New York Minutes By Brian Cunningham, CBRE Chief Engineer, CBC – Western New York

Hello to all from Western New York! It's hard to believe that we are at the starting point of another year! All in all, 2021 was not a bad year

engineering wise for our Buffalo and Rochester markets. We experienced typical breakdowns, but nothing catastrophic occurred at any of our stations, for which I am thankful!

Looking back, we weathered the storms with little down-time, and backup equipment worked to keep us on the air when needed.

We have several

projects in the works for the new year and beyond, so it looks like 2022 will be exciting, engineering wise,



The AM SiteStreamer loop antenna on the WLGZ-FM transmitter building.



and I for one am looking forward to the upcoming changes and challenges.

The first project we will be implementing

will occur mid-January. WDCX(AM) will be moving its studio operations to Buffalo. Work has already begun to get our audio path up and ready for this move. Spectrum has installed a new 200 mbps internet service at the WLGZ-FM transmitter site, which will provide audio to the WDCX(AM) transmitter site via our 950 MHz ICR link. I have installed new Tieline Bridge-II XTRA codecs at each end

to handle the audio stream, and Inovonics AM and FM SiteStreamers to give us the ability to confidence monitor both the AM air and FM translator audio via the internet.

The audio quality is surprisingly good on the SiteStreamers, and added benefits include RBDS monitoring, real-time audio alarming (audio loss/low level) via email notifications, and alarm logging that shows what type of alarm was detected along with date/time. I still have some work to do on the AM SiteStreamer, as the RF level is low enough to trip the audio alarm. I have installed a loop antenna on the rear of the building for off-air reception, but either the location or antenna height need to be adjusted for adequate audio monitoring.

On the Buffalo end, we have purchased a new Dell rack-mount Precision workstationto be used as the audio server for WDCX(AM), and an additional Wheatstone blade to handle the additional inputs/outputs specifically for the AM audio feed. We are still contemplating the need for a physical studio in Buffalo to feed the AM transmitter site, but for now we will operate with just the ASERVE feeding the program line.

In other news, on the evening of December 16, the WDCX-FM Nautel transmitter went down. I was unable to bring it back up via the Burk remote control and could not access the transmitter's controller through the AUI. I immediately switched

to the Continental auxiliary transmitter, which would come up, stay on for about five minutes, then shut down. An engineers' perfect storm... two transmitters and neither would work!

Once I arrived at the site, I tried to bring up the auxiliary again, with the same results. The problem was apparently in the IPA amplifier, so I decided to address the issue with the Nautel to get us back on the air. I found the problem to be a failed UPS, which provides power to the controller. Relocating the two power cords to the rack power strip was all that was needed to get the transmitter back up.

Then back up and running on the Nautel, I switched my attention to the Continental 816R-4C. When the transmitter was up, the IPA was showing high VSWR, and adjusting the PA grid tuning, I was not able to null out the reflected power. If I removed one of the two amplifier modules, the transmitter would stay on and the IPA VSWR would null to near zero. Thinking one of the amplifier modules had failed, I switched them from left-to-right with the same results, high VSWR. Each module would work individually in either left or right slot, but not together.

There is really not a lot to this IPA, and as each module was working, I suspected that one of the 100-ohm resistors in the combiner had failed or changed value enough to cause problems. I ordered replacements from Continental and installed them Christmas Eve.

I was then able to operate the transmitter with both modules in the circuit and null any VSWR, but the output of the IPA was about half of normal power.

On Thursday the 30th, I revisited the Continental power issue. To check the integrity of the IPA, I inserted my Bird wattmeter at the output of the IPA and looked at the power into a 500-watt dummy load. I turned the plate and screen breakers off and brought the transmitter up. The IPA output was 460 watts with no reflected, and the frequency counter showed frequency was dead-on. Knowing this, the problem had to be somewhere in the PA cavity. After a thorough search, I found the problem, a broken copper strap that connects the output side of the coupling capacitor to the swamping resistor. This strap is about an inch long and approximately 1/8" wide and is very thin. I found a suitable replacement and installed the strap, brought the transmitter up with no issues!

This was a tough one, but I have never let a transmitter issue beat me yet. Hey, I cut my teeth on Gates, CCA and McMartin transmitters years ago. If

you can keep these running, you can accomplish almost anything transmitter related.

Another strange anomaly that recently occurred was at the WLGZ-FM transmitter site. I arrived to find the HD signals off. The BE FMi-201



Continental solid-state IPA.

digital transmitter was on, but no IBOC signals were being transmitted. The FSi-10 IBOC signal generator showed power was on, but I was unable to access the menus via the touch screen on the front of the unit. The FXi-250 exciter was on and showing a fault of no signal from the FSi-10 signal generator.

I hooked my laptop up to the 9-pin control interface and was able to access the menus, finding that all of the operating parameters were missing! I have seen this a couple of times before, and the best way to get back up and running is to re-install the data via the restore disk. I located the disk, installed it into the disk drive, only to find that it would not run! The CD-ROM drive was DOA!

Fortunately, after a similar failure some time ago, I wrote down all of the settings and kept the list in the FSi-10 manual, just in case. Thankfully, I was able to re-program all of the data from my restore list and got the IBOC signals back up. I should be able to find a replacement CD-ROM drive from Insight, there's nothing special about the drive; it seems to be

an off-the-shelf item, so replacement shouldn't be an issue.

That about wraps up another month here in the great northeast, and until we meet again here in

the pages of *The Local Oscillator*, stay safe, social distance, and Happy New Year!

The Motown Update by Mike Kernen Chief Engineer, CBC–Detroit

Windows 11 Update

For those who have yet to try the latest

Windows OS, I'm happy to report that it has been working well on our writer/producer's test PC. We've detected no issues running NexGen so far, and only once have we run into a WheatNet driver issue. The driver's license file suddenly contained invalid information about the machine, which it uses to bind the key and to one of the machines network interfaces. I simply relicensed the driver through Wheatstone. No way to know if this was related to Windows 11 or something else.



satellite dish heaters and installed them. They're super easy to install, thermostatically controlled, and

inexpensive. To install them you just peel off the paper to expose the adhesive and stick them on the back of the dish. A few zip ties, plug it in, and you're done.

Switch me UP

The studio building in Detroit was built well before computer networking was a thing. That means that all the network infrastructure is ad hoc; pieced together, undocumented, and not comprehensible. As tempting as it is

to pull it completely apart and build it anew, that would be neither affordable nor easy. Sometimes it is better to leave well enough alone especially when it works – unless, uh, it doesn't.

Since my time at Crawford began, I've had to troubleshoot networking issue after networking issue. Some real oddball problems, too. I've replaced every Wi-Fi access point, completely rebuilt the Wheatnet network, and replaced several edge switches. It's made a huge difference, but short of a complete teardown, there are still lots of places for trouble to occur. To be fair, even a completely new network can have problems.

Some of the fun stuff I've found have been loops, RJ45 cables plugged end to end with couplers, and critical links bouncing through basic layer 2



Management screen of the new edge switch feeding the XDS receiver.

Dish Heater

A few months ago, we decided to install satellite internet from ViaSat into two of our transmitter sites. I wrote about that experience in a prior *Local Oscillator* article. As I said when then, I



Ice Zapper dish heater.

like the service, the installation went well, and I'm thoroughly pleased with our decision. It's also saving us quite a bit on our monthly costs.

One concern I had going in was that the dishes might load up with snow in the winter and fail, causing us to have to clear them off manually. To ensure reliable service throughout the Michigan winter, I bought Ice Zapper

switches in private offices. I even found a NexGen connection between the database server and ASERVs that traversed a \$40 switch in the office – nice to know that was hanging on by just a wall-wart!

Switch uplinks are always mysteries. Even the cables that are marked never show up anywhere else with the same markings. The few managed switches we have are locked with unknown passwords, and they can only be accessed again by factory resetting them, and that means downtime.

Our latest issue was a real head-scratcher involving our XDS Pro4Q receiver. It would drop offline every day, its log filled with complaints about bad handshake communications with its head-end servers. Setting up pings from different places finally illuminated the problem with some pings taking three to four seconds to return – if they returned at all. Restarting the XDS would cure the issue for a random period of time, but it would always return.

Following the signal path was tough, so to eliminate all unknowns, I established a new home run from TOC to the switch connected to the engineering network port on our firewall. The issue persisted, which told me that either the firewall or the edge switch was at fault. The firewall was not likely the issue because it wouldn't single out only the XDS, so I replaced that edge switch.

I've never seen a network switch fail in such a way that it slowed down traffic periodically on selective ports, and the XDS seemed to be the only client that cared. And care it does – it shuts down its TCP communications.

Going forward, I plan to continue replacement of all unmanaged switches in the network.

News from the South by Stephen Poole, CBRE, AMD Chief Engineer, CBC–Alabama

Happy new year to one and all! I hope your Christmas was a good one; ours was. My poor mother wound up in the hospital in Columbia, SC.

Thank the Lord, my two sisters and my brother were able to look after her. She's out now and headed to rehab. There was a scare about her heart, but it turns out that there was something else going on.

Sandy continues to try different things in an effort to reduce the pain that she's been experiencing for many years. As I write this, in fact, we have another appointment with a pain specialist in the morning. She's had the most luck with nerve

blocks thus far, and the folks she has been seeing are supposed to be among the best.

And finally, catching up on news from the home front, I mentioned last time that we had done some more remodeling. What I forget to say is that we have yet still another member in our little family: Miz Annie, a tiny little kitten who came to us cold, starving and desperate. During the remodel, she started loving all over one of the carpenters. He was trying to paint a cabinet and of course some of the paint got on the kitten. which is surprising, because Annie is as sweet as candy. We couldn't bear to watch her starve or to be attacked by the neighborhood

Someone had obviously abandoned her,

dogs, so we took her in. Bobbie and Charlie, our other two cats, viewed her askance at first, but now they're fast friends. I usually post a picture here of any new addition to our cloister, but she's too little and too fast. The pictures come out blurry!

Attempted Break-In at 850

Another year, another hoodlum. Todd called me early on the morning of the 17th and said that someone had attempted

to break into the building at 850 AM in Tarrant. ADS Security had called him; when he arrived, he discovered that someone had tried to force the front and back doors. At some point during the attempt, the door had been rattled enough to set off the alarm.

We have an image of the guy (Figure 1). He looks remarkably similar to the last person who tried to get into our building. We're providing all of this to the sheriff's deputies who are investigating, but realistically, I'm not sure they'll catch the guy. Then again, one of the deputies told me on a previous



attempt that it's often the same people, over and over. They'll go to jail, compare notes ("you wouldn't believe all the beautiful copper at that tower site, man!") and then go right back to stealing and breaking in as soon as they're released.

The back door was badly damaged (Figure 2, which shows before and after a temporary fix). We called in Sunbelt Builders, our contractor of choice, and had them take measurements for new doors. The front door was also damaged; the kid had a pry bar (visible if you look closely at Figure 1) and tried his best to knock something lose, or to eat a hole in the door(s) large enough to reach the locks. Sunbelt is going to replace the front door as well; for now, I've got a new deadbolt kind of clamped in there to keep things reasonably secure (Figure 3).



Figure 1 - This fellow tried to get into the transmitter building.

And that leads me to my moment of comedy. After putting in the new deadbolt lock, I went back to 850 a couple of days later to check on things. I put my key in the deadbolt, turned it ... and the door wouldn't open. I kept jiggling and wiggling, and then I set off the alarm. A quick call from ADS (they usually respond within a minute) later, I was giving them my password and trying to ignore the siren screeching right over my head. At any rate, I told them to put us in test mode for about an hour while I struggled to get in.

At length, I made it in. The door is badly warped and I had forgotten that I needed to mount the new deadbolt differently from the old one. The key turns opposite from what I've been used to for the past 20+ years. It's always something ... anyway, I made a few more repairs, reset the alarm, and called it good.

Sunbelt is coming to replace the doors in early January. They have a local supplier with stock on the steel doors that we need. We'll need the front door and one of the back doors (the back has a double, wide-opening, for bringing in large equipment). I don't know what the kid thought he might find inside of our building, but he managed to do quite a bit of damage in the attempt.

Log4J Madness

And ... another day, another security threat. This has become depressingly common in the past couple of years. This particular vulnerability is a Java program that some packages use to create log files. Unfortunately, the default configuration in certain versions will allow someone to load stuff from a



Figure 2 - Left: Damage done, Right: temporary fix.

remote server(!), up to and including malware that could take over the entire system(!!). I immediately checked our critical servers, mail and web and it seems that we're OK. Zimbra (our mail system) does use Log4J, but it's an older version that Zimbra insists is not vulnerable.

I'm not a huge fan of Java to start with. Let me state that up front. C, C++, Visual Basic, Ada, Python – there are plenty of programming languages available for use nowadays. Good languages, capable of building nice-looking, well-behaved software. The original appeal behind Java was (supposedly) captured by its slogan: "write once, run anywhere." It would be able to run on many different machines; Androids, iPads, Windows PCs, Macs, Linux, you name it.

Java was released with some show-stopping vulnerabilities. To be fair, most have long since been patched, but there is still a lot of software that was written in Java that has bugs. Log4J is just one example of many. It's also slower than native code; it requires a Java "runtime" to execute the instructions in the .JAR file.

Folks, we're back up against the old



Figure 3 - Another temporary fix on the badlydamaged front door.

juggling act between convenience and security. We're back to my old saying about locked doors on a house: you get home, it's raining, your arms are full of groceries, and you have to scramble for your key to get in. Maybe you even have to disable an alarm system. It's all inconvenient, but you wouldn't think for a minute about leaving your door unlocked and the alarm turned off, would you?

So it is in the computer world. Passwords are a pain. I use really strong passwords myself, and I finally hit on a good idea to help remember them: I actually take a screenshot of the gibberish and save the image. I also take a shot of any security questions. When I move to a new device, I have to dig up the images to log in, but again, it's convenience-vs-security.

But back to Log4J. This particular type of vulnerability is stupid and depressingly common. With everything moving to the Cloud (capitalized with great reverence), you might be surprised at how many software packages routinely pull stuff from the internet. The Log4J rig isn't the only one. If you're a web developer, look at the actual page source as delivered to the client's browser sometime. Unless you wrote the HTML/CSS yourself with a simple editor, and especially if you're using a CMS like WordPress or Joomla, don't be surprised at all of the external links that will appear in your page.

For example, some of the plugins that are used with WordPress "phone home" anytime a page is created by the plugin. Another extremely common practice is to pull CSS and "scripts" from servers elsewhere on the internet. I honestly think this is one time that security has been sacrificed for convenience; you get a dandy-looking web page, but it's pinging Google, your plugin vendor, and heaven knows whom else to pull in additional content. It's convenient, and you get a great-looking web page, but is it 100% secure? You tell me.

Corporate Computer Security

I'm sure that Cris will have more to say about this. We've chatted and thus far, we're looking at more secure ways to enable remote access. He's pricing some VNC replacements that are not only much more securely-written, you can license them with remote audio enabled. This is ideal for those who work from elsewhere, but need to listen to what they're doing before it goes on air.

MeshCentral and Virtual Private Networking (VPN) are some other ideas that we're considering. The thing to remember, though, is that the human factor is the most critical of all. People get tired; people get lazy; people just want to check their email, even at a completely unprotected WiFi hotspot; and people can be fooled by legitimatelooking links that actually take them to a fake site.

I try to keep track of all the vulnerabilities, but it's getting harder and harder as time passes. RedHat alone sends out as many as a dozen reports a day; most are for minor bug fixes, but a few are true show-stoppers. As I write this, I just installed a newly-patched Linux kernel on our web server. All of those RedHat advisories made me suspect that it was time to upgrade. Indeed it was.

That's enough for this time. Until next month, keep praying for this nation, and here's hoping that you and yours have a blessed 2022! The Chicago Chronicles by Rick Sewell, CSRE, CBNT, AMD Engineering Manager, CBC–Chicago

Generator Issues

We recently had off-air time due to generators not performing as they should. Early in

December, we had unusually strong storms that were accompanied by tornadoes that came through late on a Friday evening and caused considerable damage further south of the area.

We lost power at the studio and the generator didn't come on. I was called from the studio about the condition. The stations were still on the air because we have UPS units on every critical piece of equipment that keeps us on the air. But we probably had 20 minutes max.

Being ten minutes away, I did everything I could to get there and get

the generator going before we went off air. But it was a challenge. I was sitting at a stoplight a few blocks away from the studios and I was listening to the stations go off the air as the UPS batteries were dying; that was frustrating. Fortunately, we have backup emergency USB players at the transmitter sites and they all came on the air with the exception of one.

I was able to get an over-crank alarm cleared and eventually got the generator running, even though it took a while. Once the stations were back on the air, we followed up to make sure everything was right, and we then noticed that one of the stations was still on the back up emergency player.

Neither STL path to the WPWX site was working. We have a Moseley 950 pair that work like a hose with the one exception that anytime a power loss occurs on either unit, we have to reboot the other one. The primary path is through an 18 GHz microwave link, using Worldcast Horizon codecs for the audio. The Horizon at the studio was completely locked up and would not respond to the reset button or reboots. It was probably going to need a firmware restoration to be operational again.

One of our engineering staff got to the WPWX and restored normal studio audio with a



reboot of the Mosely 950 unit there. We had to put a spare Horizon in place while the original unit is probably going back to Worldcast for repair.

We also had lost a connection to another site through a Tieline Genie with Wheatnet card. The Wheatnet card wasn't working into the unit at the studio. What I found with that card was that it didn't like Ethernet ports on our Cisco switch that weren't locked in at 100 Mbps. Fortunately, I was able to find another port locked in at that rate and restored it.

We had a generator tech come to the site on the following Monday to determine what the issue was with the failed start on the generator. He determined that was most likely a fuel issue and cleaned and adjusted the mac

lift on the engine. This is hopefully the cure.

Another generator issue came up again in a few days at our Kirkland site. This is about a 100mile trip for me. We were off the air for a little more than two hours.

When I got to the site, I noted that the normal power source was available on the automatic transfer switch (ATS). However, the switch was in the emergency position. The generator was not running but had no alarms on it.

I went ahead and manually transferred the ATS switch and got the station back on the air. When I examined the logs of the remote control, I noted that the generator had actually come on but stopped running after two minutes.

This seemed highly unusual, and my best guess is that something fluky happened with the ATS. It wouldn't be the first time with this unit. Since we have a preventative maintenance visit scheduled soon, I am awaiting to see what they find when the tech visits. In the meantime, the generator has run okay during scheduled exercises. I am crossing my fingers that I don't have to make the two-hour drive again with the generator not running.

Rocky Mountain Ramblings The Denver Report by Amanda Hopp, CBRE Chief Engineer, CBC - Denver

Happy New Year!!

Happy New Year! Wow, 2022. I don't know what's scarier, the fact that it is already another

year or that it's 20-20, two. I guess only time will tell if that is the actual truth. I hope it is actually an even better year than 2021.

December Recap

December turned out to be a rather slow month for me for the most part. I only made a couple transmitter site trips. One of those was quarterly tower light checks and the other was to deal

with a tower parameter issue that was creeping in. Both easy things to do.

I mostly spent the month at my desk cleaning up. I still have various folders to go through, but the process of moving all things 2021 to its own folder and purging 2020 items has started.

I am actually on "vacation" as I write this, although I have had to make a couple trips in to work to deal with issues while off. One was a UPS. What I don't like about them is they are great until they aren't.

In this case, the KLTT control room UPS, one of our newer ones, started beeping on December 22nd. I don't typically keep batteries on hand for replacement, so I looked around and found none online at any of our vendors. We silenced the alarm and left it to deal with until I was back at work in January.

Normally these units will only test once a week. That's something we could handle, silencing the beeping a couple times before the battery is replaced. Instead, the next day, the 23rd, it began screaming again. I knew I couldn't ask the staff to just deal with it, so I called a local Batteries Plus and found they had a couple of the required batteries in stock. They were priced higher than I would like, but it meant I could fix the UPS before Christmas and have assurance that if the power failed while I was out, the equipment would be safe.

The other issue was our backup internet at the KLVZ transmitter site. We have a few things on



it, including backup audio and the alarm system. I received a call from the alarm company on the 27th that they were not receiving communications from

the system. I dug into it and found the wireless not working. That was key for me. We have a modem from Century Link and from there we go to a TP link wireless router that we use for wireless and into which we plug a couple items.

Upon arriving, I found both units were lit up, but in true troubleshooting fashion, I did the reboot first. I unplugged both units and waited a few seconds

before plugging them back in. In a matter of minutes, the alarm system quit flashing red and I could see the wireless again. I checked our Barix and could see it was receiving audio from the studio, so I knew the backup internet was working again.

I am not sure exactly what happened. Unfortunately, those two pieces of equipment are not on a UPS. It's possible we had a power bump that locked things up. There is really no telling. I am happy things are back up and running now. My goal is to not be at work until January 3. We will see if that happens.

Upcoming

January looks to be a busy month for me. I am learning some new products that we will be using throughout the company. I have a scheduled meeting with an engineer to help me learn "best practices" so I can learn how to set up each market in the best way possible.

I am also figuring out how to best get remote access to various computers in our facilities so we can do away with Team Viewer. While a great program, it is way too expensive. I look forward to learning and deploying these various programs and getting things across the company done in a way that any of us engineers can better help one another because we have a much more similar setup.

That about covers it for this edition. I pray you all had a wonderful Christmas and New Years', and that you all stay safe and well.

Sign-Off John White Chief Engineer (Ret.) KKPZ – Portland

This column will be my last. The column that is. It wasn't planned, and the circumstances are beyond my control.

As I often did in previous columns, we must have a theme. In fact, two would be even better. The first nominee is the super group, The Traveling Wilburys, and the song: *End of The Line*. And they did span the length of the line, from Roy Orbison (classic rock) to George Harrison, (Beatles, mid-rock years) and Jeff Lynne (modern rock).

Years ago, I

became friends with a historian who focused on the history found in the great works of antiquity, He often said the Bible was as much a historical text as it was a religious test. In church, it's a religious text; at work for my friend, it was a historical document.

One day, we happened on the topic of the present-day climate of the Middle East. I'm not sure what prompted my comment about the Middle East (an item in the news most likely). Then desert photography somehow became the topic of discussion. That inspired a series of questions for me.

"So once a desert, always a desert, right?" "Uh, yeah," I replied.

"The weather didn't change?"

"Not really," I said.

"The Bible mentions the use of palm tree branches on palm Sunday."

"Okay," said I.

"So nothing changed then?"

By then I was starting to catch on.

"Probably," I said, "but I don't know what changed." "So the lush valley became the desert of

today?"

I agreed.

He then told me what changed. The Romans kept meticulous records and loved to collect taxes. And it seems the Romans chose to tax trees. People of course then cut down trees to avoid the tax. Over time, without trees to hold the rainfall, the area



Much the same is happening here in Oregon. The state decided to tax business activity despite profit or loss. Some ten years ago, the state passed a temporary version of the tax. With pressure from

the state, Blue Harran, a local paper company, had just invested \$10 million in energy efficacy upgrades. The paper market was down, and the upgrades put the company firmly in the red.

Some years later, the state decided to tax revenue retroactively, and Blue Harran received a tax bill for \$1,000,000 for the last year and another t\$1,000,000 for the year previous. Needless to say, they went out of business.

In today's radio environment where a single station tries to survive in a dense market of station clusters, the state's added tax burden makes survival in the Portland market impossible.

I went through all that explanation because I wanted to be clear that there was nothing we could have done at the station to change outcome.

The last few months, I have been flying by the seat of my pants. After years building and perfecting KKPZ, the idea of Crawford Broadcasting, Cris and those of us in Portland taking the station apart was theoretical territory. The truth is that we had a lot to figure out, like a blind man in a room with an elephant.

I could dwell on what might have been, what should have been. I prefer to remember 20 years with a broadcast company that was my home. I remember the people I worked with at Crawford with fondness. And that is what matters. Thank you all.

That last theme, you ask? That's a song covered by a countless number of singers and groups. *Turn Your Radio On*.

KBRT • Costa Mesa - Los Angeles, CA 740 kHz/100.7 MHz, 50 kW-D/0.2 kW-N, DA-1 KNSN • San Diego, CA 1240 kHz/103.3 MHz, 550W-U KCBC • Manteca - San Francisco, CA 770 kHz/94.7 MHz, 50 kW-D/4.3 kW-N, DA-2 KLZ • Denver, CO 560 kHz/100.3 MHz, 5 kW-U, DA-1 KLDC • Brighton - Denver, CO 1220 kHz, 660 W-D/11 W-N, ND KLTT • Commerce City - Denver, CO 670 kHz/95.1 MHz, 50 kW-D/1.4 kW-N, DA-2 KLVZ • Denver, CO 810 kHz/94.3 MHz/95.3 MHz, 2.2 kW-D/430 W-N, DA-2 WDCX • Rochester, NY 990 kHz/107.1 MHz, 5 kW-D/2.5 kW-N, DA-2 WDCX-FM • Buffalo, NY 99.5 MHz, 110 kW/195m AAT WDCZ • Buffalo, NY 950 kHz/94.1 MHz, 5 kW-U, DA-1 WDJC-FM • Birmingham, AL 93.7 MHz, 100 kW/307m AAT

WCHB • Royal Oak - Detroit, MI/ 1340 kHz/96.7 MHz, 1 kW-U, DA-D WRDT • Monroe - Detroit, MI 560 kHz/107.1 MHz, 500 W-D/14 W-N, DA-D WMUZ-FM • Detroit, MI 103.5 MHz, 50 kW/150m AAT WMUZ • Taylor - Detroit, MI 1200 kHz, 50 kW-D/15 kW-N, DA-2 WPWX • Hammond - Chicago, IL 92.3 MHz, 50 kW/150m AAT WSRB • Lansing - Chicago, IL 106.3 MHz, 4.1 kW/120m AAT WYRB • Genoa - Rockford, IL 106.3 MHz, 3.8 kW/126m AAT WYCA • Crete - Chicago, IL 102.3 MHz, 1.05 kW/150m AAT WYDE • Birmingham, AL 1260 kHz/95.3 MHz, 5 kW-D/41W-N, ND WYDE-FM • Cordova-Birmingham, AL 92.5 MHz, 2.2 kW/167m AAT WXJC • Birmingham, AL 850 kHz/96.9 MHz, 50 kW-D/1 kW-N, DA-2 WXJC-FM • Cullman - Birmingham, AL 101.1 MHz, 100 kW/410m AAT



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