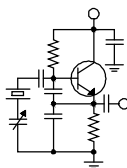


The Local Oscillator



The Newsletter of Crawford Broadcasting Company Corporate Engineering

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Strange Days Indeed

Nobody told me there'd be days like these... strange days indeed. Or so sang John Lennon back in 1980.

And it's true. Not one person I know has ever been here before. None has ever been through anything even remotely like this global pandemic and all that surrounds it. Certainly there have been "worldwide" plagues before, but not like this. Earlier plagues tended to be localized, at least to a single continent or region. But our world has shrunk in recent decades. Air travel and a global economy mean that people move about the globe as never before in history and, unfortunately, take infectious microorganisms along with them.

Amanda and I somewhat wryly joked that a certain pothole near our office was so deep that it reached all the way to China and was undoubtedly the means of ingress for COVID-19 to North America, but all joking aside, I have no doubt that it arrived on an airliner.

Whatever the entry point, here we are, fighting a global battle against an unseen but deadly enemy. Instead of huddling in bomb shelters and practicing duck-and-cover as in wars past, we are masked up, gloved up and keeping a safe distance to other people. And wisely so!

It is that mitigation that has so impacted the way our radio stations operate. In some markets, we are locked out because someone had symptoms or tested positive (or had a member of the household that did). Sending everyone home and locking the doors was the only safe and sane thing to do in those circumstances. It is in those circumstances that our technical staffs have shown their stuff, equipping our homebound staffers to continue to do their jobs from a remote location, keeping sales, production, operations, traffic and billing all running at a level

that sustains some semblance of normalcy in the on-air product.

Early on in the process, certain individuals complained loud and long about some of the limitations of working remotely. Some of these folks believed that we should essentially recreate their workplace in their homes so that they could continue to do their thing with no inconvenience whatsoever.

That bubble was burst in a hurry, and I did my best to explain to them that these are difficult times, difficult circumstances. We are in uncharted territory, and we have only the resources that are reasonably available with which to work. We should *expect* some inconvenience. We should *expect* some difficulty. And we, the management of Crawford Broadcasting Company, expect our people to be creative, innovative, patient, determined and *flexible*, finding workarounds and remedies within the bounds of the available resources.

I must say that I am proud of our people. They got the message and got on task. They figured out how to make things work, how to work together while apart, and they kept and continue to keep the trains running on time.

I am most proud of our technical people, our engineers and IT folks, for proactively working to produce the needed infrastructure to make remote operation possible. Some of this was fairly straightforward (I won't use the word "easy," because nothing was), but some was a real challenge. In one market, our largest, a special VPN had to be created to transport voice tracks from talent's mobile devices into Nexgen, just one example of the above-and-beyond kind of work that was necessary to get through this.

In the midst of the storm, our people continued to work on various projects. As they say, the show must go on, and some of these projects involved safety of life. New tower lights on the tallest

tower in the company were installed even while our engineers scrambled to prepare for a studio lockout. In the same market, our people installed a new transmitter, and in another, they made preparations for a huge studio renovation project. Multitaskers one and all, our great people got it done, and for that we are grateful. Well done!

So what happens now? We keep plugging along. We keep operating, airing programming on our stations, providing a resource and, in many cases, a deep source of comfort and *normalcy* to our listeners. We maintain studios, towers and transmitter sites. Where possible, we press forward with projects. But in every case, we take precautions, maintaining social distancing as recommended. This means that most of the time our engineers will work alone instead of in pairs as many so often do under normal circumstances in the big markets. It means that tasks will take longer to complete, but we will get them done. And all of us will work hard to be patient.

There is no crystal ball to tell me how long this pandemic and the necessary mitigating measures will go on. Our great president and his wise advisors are now talking about June before things start to return to normal, but even they hedge that prediction because they just don't know. Modeling and predictions based on what has already happened elsewhere in the world can only take us so far. All of which is to say that we have to be prepared to dig in for the long haul. Hopefully it will end sooner than predicted, but there's no way to know, so we have to be mentally prepared for a worse or perhaps worst case scenario. But we will get through it.

The priority for each of our people, ahead of anything work related, has got to be to *stay well!* Take all the required precautions and then some. Don't take unnecessary chances. Think about what is at stake and ask yourself if the reward is worth the risk at every turn. We can't live our lives in constant, paralyzing fear, but we have to be smart.

If there is one piece of advice I can give you in addition to the above, it is this: Stay on your knees in prayer. Keep in the Word. While your church is not meeting, if it does not offer live-stream services, find a local church that does offer that and don't just watch but participate! I really think that a good part of the COVID-19 battle is spiritual, and if you keep yourself in good spiritual good health, you'll be in much better shape to fight the physical battle.

Finally, let me leave you with this. The Lord is in His holy temple; the Lord is on His heavenly throne. He has not ceded control of this world to anyone or *anything*. Keep your eyes on Him and He will see you through.

Detroit Issues

In the "Adding Insult to Injury" department, we are dealing with a number of technical issues in Detroit.

In mid-March, at pattern change one morning, WCHB tripped off the air and would not run. I was able to get on the transmitter and remote control from Denver and ascertain that there was likely something wrong on tower #1, which is a large free-standing structure also used to support Entercom's WOMC-FM antennas and any number of STL and other antennas. Each one uses a stub-tuned insulated transmission line, and a broken or corroded shorting strap connection on any of these will drastically alter the impedance at the base of the tower. That's what has happened, and we're trying to get a tower crew up to locate and deal with the problem, wherever it is. In the meantime, we are operating on an STA with slightly reduced daytime power non-directional on tower #2 and full power at night on that second tower.

And then we took a lightning hit on the FM tower at the studio over the last weekend in March. That produced a bunch of what appears to be secondary damage of H-field inductive surge to Ethernet and audio cables, dead NICs, damaged op-amps and the like. The Trango microwave radio that feeds the WMUZ(AM) site is dead and we're waiting on a tower crew to come swap that out.

Add to that two damaged power modules in the WMUZ(AM) main transmitter, a Nautel NX50. The modules were repaired and reinstalled, but there are still problems and Nautel believes that the PA backplane has a problem and has shipped a replacement. The good folks at Summit Technology Group will get that taken care of when they can, but first they have to fix the Harris aux transmitter, which has a problem and won't run. Like I said, insult to injury! Thankfully the NX50 is running at full power, even with the backplane issue, so that takes some of the pressure off.

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

Hello to all from Western New York!
I love history, especially radio history. As the COVID-19 virus has us all virtually isolated, I took some time to perform some cleanup of several file cabinets in my engineering office during one of the days I spent in the office. Going through literally hundreds of file folders, I came across some information about the WDCX-FM tower collapse in January 1979.

Many of you are not aware that this was not the first time the WDCX-FM tower had fallen. Just weeks before we were scheduled to go on the air, on the early morning hours of Sunday, August 26th, 1962 a motorist traveling Route 219 reported to the New York State Police that they had observed that a radio tower's lights had fallen to the ground. The following is a news report that appeared in the local newspaper:

NEWLY ERECTED RADIO TOWER COLLAPSES
BOSTON POLICE SUSPECT SABOTAGE

Town of Boston Police are investigating the possibility of sabotage in connection with the collapse of a newly erected 400 foot radio tower on Zimmerman Road, early Sunday morning.

The tower, completed only 2 weeks ago, collapsed without warning when several clamps on supporting cables gave way, causing the tower to fall within 50 feet of the highway. No one was injured. Police Chief Arthur May of Boston reports that "the tower did not come down by itself. We are investigating the possibility of sabotage. This is no kids stuff." May said that clamps holding the cables apparently were loosened with a wrench, causing the galvanized steel tower to crash to the ground. The tower is owned by Kimtron Inc. of Philadelphia. It was to be used by radio station WDCX-FM, a Buffalo station scheduled to begin programming in early September.



Neither May nor Station Manager Lewis T. Jones could estimate damage to the tower which is located on Zimmerman Road between Rice Road and Polish Hill Road in the town of Boston. An unofficial source estimated damage to the tower at \$20,000.00.

May said that a caretaker, Henry Enser of Zimmerman Road had checked the tower and the cables about 5:00 Saturday afternoon and found everything in order. May quoted Enser as saying he was awakened by a crash about 2:00 am, but did not get out of bed to investigate.

Police were notified of the crash by an unidentified motorist on nearby Route 219 who said he had been noticing the red lights of radio towers in the vicinity when one set of lights seemed to fall. The tower is located about 500 feet from a larger one used by WEBR and both towers are on a hill 1,450 feet above sea level.

May added that his office was investigating a report that a black compact car containing a man and woman were seen near the tower two hours before its collapse.

Workmen are installing a transmitting antenna atop the tower. Station Manager Jones, said that Kimtron intended to go ahead with its plans to go on the air, but could not say when the station would be able to begin operations. The station will broadcast on 99.5 megacycles with a power of 110,000 watts. Kimtron President, Donald B. Crawford of Philadelphia arrived on Monday. The station broadcasts a format of religious programs, news and classical and semi-classical music.

The second time the tower fell was approximately 12:40 am Tuesday, January 30, 1979. Chief Engineer, Rudy Lazzazero received a phone call from board operator Irwin Lasher reporting that

the station was off the air, and he could not bring the main nor the back-up transmitter back on. They checked the signal from neighboring WNED and found that they were on the air, so Rudy had Irwin make the trip out to the transmitter to see what the problem was. About 2:30 am, Irwin phoned Rudy and said that he could not get up the hill due to the bad road icing. He also said that he couldn't see any tower lights on WDCX or WNED towers.

Rudy then phoned the power company and was informed that they had lines down in that area. Irwin went home and Rudy went to bed. About 4:30 am Rudy phoned the power company again, and this time he was informed that they received a report that a radio tower was down on Zimmerman Road, and power would be back on in about an hour. Rudy phoned the studio operator and informed him that he would arrive at the transmitter site at early dawn.

Arriving at the site at approximately 7:30 am, Rudy found that only about 30 feet of tower was left standing; the remainder was twisted and scattered throughout the transmitter site. He then checked the building for any additional damage from the tower collapse, and found only minor damage from conduits being ripped away from the building. He noted that there was approximately 3-6 inches of ice covering the entire tower structure and up to 1 inch of ice on the guy wires.

Fred A. Nudd Corporation was called in to see if any of the fallen tower sections could be salvaged and added to the remaining section still standing, to get the station back on the air. They were able to add several sections and a single bay of the antenna to get the station temporarily back on the air. Once weather conditions permitted, a new 425' tower was erected near the site of the old tower, the tower we now have in place.

The only indication that a tower once (twice!) fell on the property is, of course, the old concrete foundation and an 8' tower section and hundreds of feet of guy wires located in the woods several hundred feet away from the building. Figure 1 is a picture of the sole remaining damaged tower

section. Three towers collapsed in this major ice storm in the Western New York area, ours, and a tower located in Jamestown, NY and another in Erie, Pennsylvania.

This is all part of our station's history, and should be written down and saved for future staff. *The Local Oscillator* works as an ideal resource for events and improvements we have performed to our stations. If you have any interesting events that have happened in your station's history, find some way to document them for future generations, or write about them here in *The Local Oscillator* for all to enjoy!



Figure 1 - Very little evidence remains of the fallen tower.

When CBC purchased WNED(AM) back in 2014, I did an extensive research into the history of this station, and found that it actually went on the air on September 22, 1922! It was built by Norton Laboratories as an experiment to send amplitude modulation voice transmissions between Niagara Falls, NY and Cambridge Massachusetts. I also found out that it was a timeshare partner with WFBL in Syracuse (a station we owned and operated as WDCW) Talk about coming full circle! One other interesting item to note is the fact that the studio location was on North Street in downtown Buffalo, the exact location where WDCX-FM began its operation on February 18, 1963.

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 well, and happy engineering!

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

March was one of the busiest months we've ever had in Birmingham. I thought we were busy back in 2005 when we did the renovation and build-out for the new studios at 120 Summit Parkway, but I honestly think this has been crazier.

I'm not going to say a lot this time. (You can thank me later.) I'll just share a bunch of photos. First:

Cullman Tower Lights

We were scheduled to receive the Nautel NX50 for WXJC(AM) and I was making plans for that. I had assumed (and yes, I know the folly associated with assumptions) that the tower lights would be delayed until the weather was a bit more favorable. But out of the blue, the tower crew called and said they were almost in Birmingham.

Ah. OK, then. Run to Cullman, get them started, then assign an engineer to help keep an eye on things while they work. But yay, thank the Lord, and Hallelujah! After years of being under a NOTAM for the strobes on WXJC-FM's 1,330-foot tower, we now have a new LED lighting system.

It's amazing how bright those things are, but they have one thing in common with every other LED obstruction light that I've seen: the beamwidth is carefully focused to get the needed intensity. Simply put, if you aren't looking straight at the light, instead of off angle, you may miss it. I remember Cris sharing a story, many years ago, of an inspector who insisted that one of the towers in Denver wasn't flashing. As I recall, Cris had a time arguing with that guy. Well, I hope he never breezes through Cullman, AL, because I'm telling you, the top tier and the AOL at the very top are barely visible from the ground. But they are flashing. We've confirmed that.

Figure 1 is a somewhat artistic view of the old lights, thanks to Jack Bonds. If you look very closely at the flash head on the front left, you might notice the bullet hole. Ah, life in Alabama! Figure 2 shows the new LED assemblies, laid out and getting ready for installation. Twelve of them, each with 3 LED flash heads. Each head has a bunch of LEDs, so an obsessive-compulsive person could amuse himself

for hours counting the individual lights. I didn't bother.

With constant storms and fires to put out elsewhere, we haven't had a chance to "drone" the tower yet. Lord willing, we'll have some pictures of the LEDs in their new mounted homes next time.

Studios: Air Conditioner

Because we didn't have enough to worry about, the HVAC at the 120 Summit studios also decided to die for good right about the time we were getting ready for all of this work. Todd tried to rig up some swamp cooling (i.e., evaporative

Figure 3), but that doesn't work very well in Alabama. Our humidity is already too high as it is. But I give him snaps for trying. The goal was just to get the building cool enough until the new rooftop unit arrives sometime in May.

Fortunately, the building management company had some spare "spot" coolers (portable AC units) that they were willing to lend us. The building has a ceiling return plenum, and the fan still works on the old rooftop unit, so they were able to vent the portables that way (see figure 4). Given that many of our staff are working from home as I write this, we should make it until May. Yay!

New NX50 At Tarrant

Now for a bunch of additional pictures. As mentioned above, our new NX50 arrived during a rare break in the almost-constant rain, and we wasted no time moving it into the building (Figure 5). The ground was soggy, but as usual, Danny Dalton came through for us with his tractor-mounted forklift. We didn't want to uncrate the transmitter until it was inside the building, because the rain was expected to return at any moment. It was a tight squeeze (Figure 6), but we had about one inch of clearance. With a little honking and shoving she went in just fine and we opened up the crate.

One of the crates had been damaged (Figure 7), which caused me to send an email to Jeff Welton at Nautel. This was a smaller (one of three) box that contained the transformer for the NX50. Fortunately,



the transformer looked OK, and when I installed it later, the transmitter lit up normally. OK, thank you, Lord!

As reported last month, we had already cut a hole in the wall for the new transmitter and once again, it squeezed in just perfectly with a little trimming (Figure 8). The plan was to move it into the place then occupied by the ðniteö transmitter, a Nautel ND2.5. We had to stay on air at night while we worked on the new transmitter, so we rigged up some ugly-but-functional wiring and coax to the night input on the phasor (Figure 9). Then we got to work on the NX50. We hired an electrician to run the new 3-phase feed (Figures 10 & 11) into the transmitter.



Figure 1 - Bubba used these for target practice.



Figure 3 - Todd made a valiant effort to swamp us.

As I write this, we're almost on air. Between storms, having to set up ways for employees to work from home, and all of the other happiness, it's not feeding the antenna system yet. Lord willing, it will be done very soon, though. Todd and Jack have already run the coax (Figure 12), the AC is in, the unit lights up. Now for the easy stuff, including some sheetrock and molding work to make the wall look pretty again.

Easy. Heh. If you believe that, you'll believe anything. Until next time, pray for this nation!



Figure 2 - Shiny! (Literally!)



Figure 4 - Spot coolers to keep things livable.



Figure 6 - REAL engineers call this a 'tight fit.'

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Figure 5 - Danny Dalton and his trusty tractor/forklift to the rescue!



Figure 7 - The transformer rode in this crate. Oh, boy.



Figure 8 - She fit just like she was meant to!



Figure 9 - Temporary rigging of the old night transmitter.



Figure 10 - Real electricians live with their heads in the clouds ... erm, ceiling.

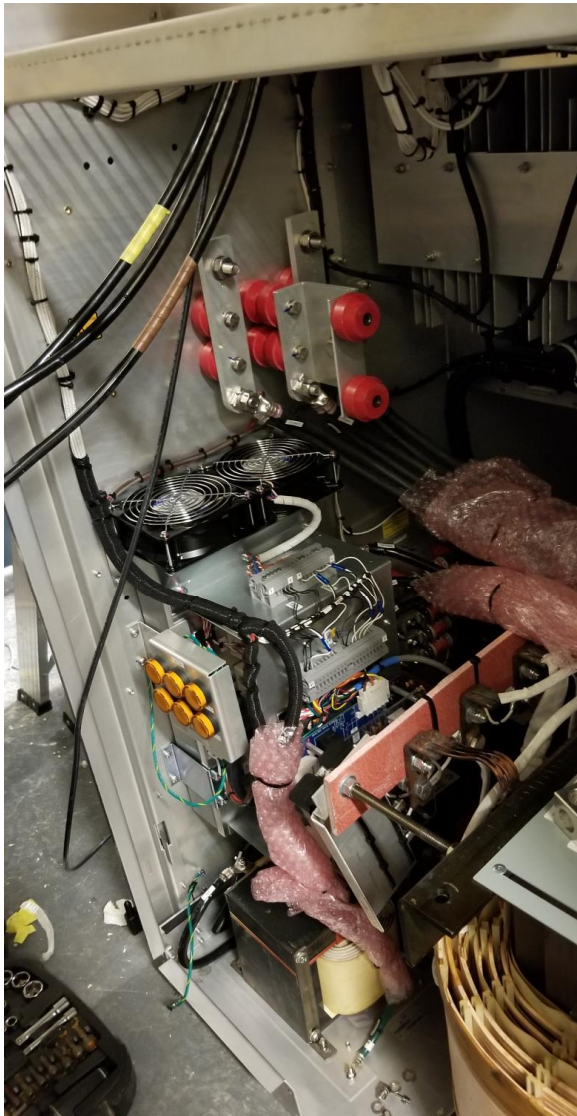


Figure 11 – Yes, the transformer worked fine once we wired it up pretty.

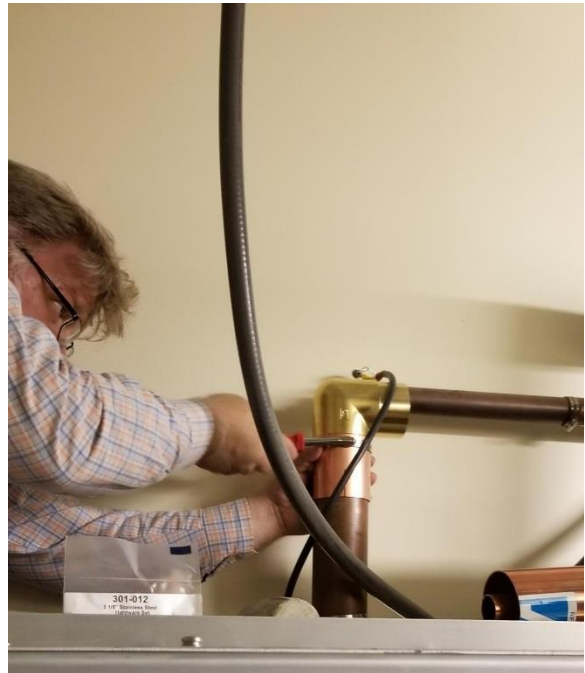


Figure 12 - Todd (and Jack, not pictured) running the 3-1/8" coax.

The Chicago Chronicles
by
Rick Sewell, CSRE, CBNT, AMD
Engineering Manager, CBC–Chicago

The phrase “we’re all working differently” is a mantra for all of us right now. That is certainly true for us in Crawford Broadcasting’s Chicago market. I would have to say, in many ways we were less prepared for having to work remotely and more automated than most places in the company.

That is simply due to the fact that our stations are set up to be run by a lot of personnel. We never really had many of our stations automated with walk-away operations at all. Even during satellite-fed national programs, there were several personnel involved in running the programs.

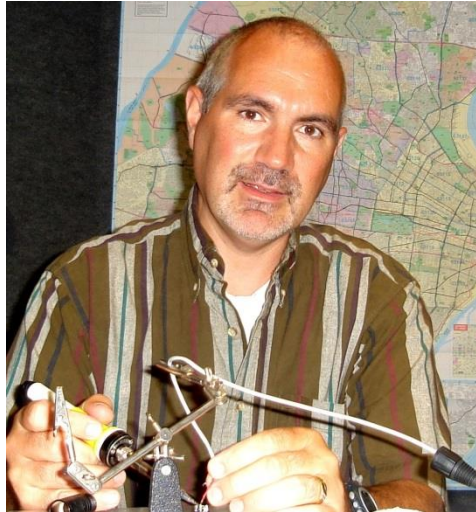
From an office standpoint, we never really had employees work remotely with one exception. So from that aspect, we were not ready to have our staff work from home. With the idea that we could be hit with a possible shutdown, or even worse – a lockout, we really were not ready. I have worked at different and smaller operations that would have handled such an event a lot more smoothly.

Fortunately, we haven’t had a total evacuation of the building at the time of this writing. The other thing in our favor is that it seems that this pandemic hit the coasts harder first and is working its way toward the Midwest. This gave us a little more prep time to get ready.

Some of the challenges we faced was getting our traffic department ready to work with their computers off site. The biggest thing was getting VNC to work on their network. They are on their own VPN network with the downtown sales department, and this is a very secure network that would not allow us to use VNC on the network.

We had to come up with a workaround. Since we already had a second network jack in each office, we decided to add a second NIC to each of their computers, then place them on our house network where we could add port forwarding for

VNC to their computers. At the time of this writing, they have been working for a week with this method with fairly good results.



Another big issue that is an interesting challenge is the production department. For the most part, they are still working in their individual studios. But we are working on a way for some of them to work remotely. There are some who already have home studios, so we have sent their Mac workstations home to use for producing spots there.

The challenge with this has been that Mac computers are not really set up to work well with VNC – they won’t do file transfers via VNC. Therefore, we have been using a combination of Team Viewer to transfer the produced files to our NexGen automation system and then they use VNC to place the order the rest of the way.

Since we haven’t faced a total lockout yet, we haven’t had to stop having a board operator in each control room. This means we are still running satellite-fed programs with a live body, manually. To me it is not an “if” but a “when” situation that we will be eventually face a lockout at our studios. To that end, I set about getting the satellite-fed programs ready to be automated.

This was basically starting from scratch. We had to provision and wire the relays. From there we had to program the Wheatnet and Nexgen optos and then get the clocks ready in our automation system. We had to do this with four different satellite programs, and do it in a hurry. We have it ready; but at this point haven’t had to implement this since we still have bodies in the studios.

The rest of the formats for three of the stations are music with jocks so this can be automated in an emergency. Currently, most of the jocks are staying at home and emailing their voice tracks to the board operators in the studios. This works fine if we are in skeletal mode, but we will

have to find another method to make this work if we have a total lockout.

This has certainly been challenging times for everyone. We as broadcast engineers are facing it and responding with everything we have at our disposal.

While we never want anything like this to occur, we have the opportunity to shine and prove the worth and necessity of having a dynamic engineering department.

Valley News
By
Steve Minshall
Chief Engineer, KCBC -- Modesto

The Coronavirus is the center of attention throughout the entire world. The last month has indeed been interesting, unlike any other month in my lifetime. So much has already been said and so much is yet to be said, what could I possibly add to that, except some random thoughts? Since this is a technical publication, the worst that I can do is waste a few electrons.

The closest thing to this crisis in my memory was the Cuban Missile Crisis. I was only five years old at the time, but I do have a few distinct memories. I recall that the only thing adults were talking about was the Cuban missiles and the real possibility of dying from a nuclear exchange. I don't recall any memories of store shelves being cleared out, but I know that it did happen from photos that I have seen. There is one memory that did burn into my brain however.

We lived in Glendale, California at the time. It was a normal ritual for my mom to take me walking to the post office a few blocks away. We would always cross some train tracks on the way, and there were the usual train cars to be seen either going by or sitting on the tracks.

The one image I have remembered from the Cuban Missile Crisis is the day that we got to those railroad tracks and there were flatbed rail cars lined up as far as I could see, each one loaded with army tanks. Where they were headed, I do not know, but I can assume they were probably on the way to Los Angeles Harbor to be loaded onto ships.

One thing that I've noted during this Coronavirus crisis is the term "shelter in place." The term is, or at least was, being used incorrectly. I am sure that most of the readers recognize the term as

one of the events in the Emergency Alert System (EAS). A shelter-in-place warning is to be used in the circumstances where going outside is

immediately dangerous. Its use is for such events as a chemical spill, an active shooter, nuclear fallout, etc. Fortunately, government officials have stopped using this term, but the media is a little slower in dropping the use of shelter in place.

This crisis seems to have amplified the character traits of many people. The selfish have become more selfish, the paranoid have

become more paranoid, the conspiracy theorists have more conspiracies, the evil ones have become more evil, the generous have become more generous, the kind are more kind, and the wise have shown wisdom. There are some people that I have lost some respect for. There are people that I would not normally agree with, but some of these people have shown great wisdom.

Here at KCBC, it has been a pretty quiet month. Because our studio/transmitter site is somewhat remote and the staff quite small, social distancing is more of the norm rather than a new thing. It is interesting to see the decrease in road traffic near the station. About a quarter of a mile from the radio station is a very active highway. Normally you can wait quite a while waiting for a chance to enter the highway, especially on a Friday afternoon or weekend. Now you can come up to the stop sign look both ways and not see a single car in many cases.

At KCBC we have a Nautel NX-50 main transmitter and an ND-50 auxiliary transmitter. Someday soon, the deliveryman will bring the new toys, an AM IBOC and an Exporter Plus. These will



replace the aging NE-IBOC HD equipment on the auxiliary transmitter. A big benefit is the ability to run the auxiliary transmitter with MDCL.

The station has peak demand electrical metering, which means we get charged a very large premium for the maximum number of kilowatts used at any given time (integrated over a 15-minute period). We have to be very careful not to push the amount of power used beyond the norm for even a few minutes, because this would have a serious impact on our electric bill for the whole month. This is where the use of MDCL makes a huge difference in our power bill. Since our auxiliary transmitter does not currently have MDCL, we have to be very careful in how we use it, running it at no more than 25 kW or at full power only when on generator power.

One little project I have been working on is cleaning up the wiring in the transmitter equipment rack. I think everyone knows how these racks grow over time. The wiring tends to get less neat as changes are made and time goes on. Now, with the new equipment coming, I decided it was time to

clean things up. I decided to replace a lot of the unshielded CAT-5 wiring with shielded CAT-6 patch cables. I have not had any problems with the unshielded cables, but in a rack that sits between two 50 kW transmitters, it seems good engineering practice to use shielded cables when possible. I bought a bunch of the patch cables, each one a different color to make tracing in the rack a lot easier. Replacing some of the 6-foot power cords with 2-foot power cords also helps to reduce the clutter in the rack.

Sometimes it's the little things that make life nice. I have been using cheap, four-inch tie wraps for a long time. Somehow, I managed to misplace the bag and I cannot find them, but that gives me a new opportunity. It is the opportunity to buy some nice tie wraps, so I bought some Panduit four-inch tie wraps. It's a little thing, but life is better because of it.

Finally, be glad that we have not completely converted to metric. If we lived in Europe, our social distancing would be about 6 inches more than we have here!

The Portland Report
by
John White, CBRE
Chief Engineer, CBC-Portland

I love snow. I love the crunch under my feet. I love snow angels. I love footprints in the snow. I love catching snowflakes on your nose. I love snow.

After a sudden mid-March snowstorm, I was thinking I am so over winter. Given what was to come, I learned I really love snow, or at least what it has produced in terms of readiness for the instant crisis.

What a difference perspective makes. Two days after the March snowstorm, Portland issued a COVID-19 alert and closed city meeting facilities. Fortunately, Portland has remote access in place due to winter storm access issues. That, however, is just a good start.

Next, sanitizing of shared areas became an issue for those times when physical presence is required. With the prevalence of electronic equipment in our industry, finding compatible

cleaning materials that won't damage the equipment is a concern. The iPhone guidance has recently been updated to approve the use of Clorox wipes and isopropyl alcohol wipes.

We obtained a stock of Clorox wipes and at the end of each in-person shift, common facilities will be sanitized. KKPZ has adopted this for our control, production and talk studios. The recommendation is to gently wipe surfaces and allow to air dry. Do not scrub aggressively.

Within days, the shelter-in-place orders eventually closed all business except grocery stores and other essential business. Fortunately, Oregon has not begun to establish checkpoints, and hopefully it won't come to that. There has been some pressure from some officials to limit access. Some of you may be aware that the Department of Homeland Security has issued travel and fuel authorization letters to broadcast engineers (First Informers).



Those have, I believe, been distributed to all the engineers in the company.

Local elected officials have been reported to be considering tightened travel restrictions. So what steps should you take as a broadcaster? First, print out several copies of the letters and keep copies at work and in vehicles that you expect to use. Second, nationally, broadcast engineers are known as "first informers." If you are stopped at a checkpoint, your ability to identify that you are an eligible individual will be important. Three options are available in order of significance

The best identification will be travel credential issued under your state's First Informer program if it has one. As an alternative, you can show your SBE certification / membership card to verify your eligibility as a first informer broadcast engineer. Lastly, if you have neither of those, you might try a business card which identifies your station and you as a broadcast engineer.

You should have these items readily available if you are stopped or at a checkpoint. When approached, tell the officer your name and that you are a first informer working with critical communications infrastructure. Hand the officer your letter and identification. Above all, be



A mid-March snowstorm on Mt. Scott.

respectful. Follow the officer's directions. If you are turned away, you should comply. Remember, the person you are talking to doesn't want to be there any more than you wanted to be stopped. Consider alternatives. Perhaps there is an alternate route that you can use. If you have an alternate solution that doesn't require travel, use that solution.

Remember, honey works better than vinegar.

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

COVID-19 and How We Are Preparing

What a time we're living in right now! Looking at last month's newsletter, there was not one mention of COVID-19. How quickly everything has changed!

This crisis is affecting all of us. All of Colorado, and many other states, are in a shutdown. I know here, traffic is lighter, but since the shutdown, not much has changed. Are there really that many "essential" people out there, or are there just a bunch of idiots who refuse to listen?

I know we are doing our best to obey the order. Both my husband and I are considered "essential" under the governor's order. My husband no longer works for his dad but for a local company, Telos Aerial, and they are contracted

with Noble Energy, which is a gas and oil producer. His job is to inspect all the well heads; well, maybe not all the company is to inspect them all, but

Jordan still has a lot to inspect. The workload is divided up. If the wells don't get inspected, they risk damage to one or more going undetected and a catastrophic event happening because of it.

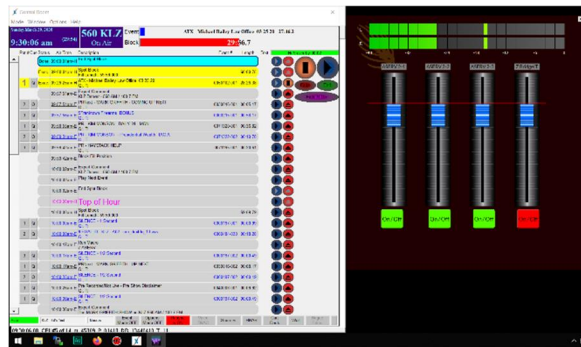
Of course, I am in radio and am the head engineer here in our Denver market, and "media," including radio and TV, are considered essential.

To say I have been busy these last two weeks would be an understatement. Watching the news, we knew things were coming, we just didn't know when. We needed to figure out who absolutely must have remote access to things.



We have a corporate Team Viewer account with twelve seats. What that means is, I can create hundreds of logins for people, but at any given moment, only twelve remote computers can be accessed. This is company-wide, including our corporate office and several markets. It would be easy to get twelve people on at the same time, making it so someone else can't do essential work.

I know I am working really hard to just use VNC. There are a few things here and there that Team Viewer makes easier for me, but until this crisis is over, I will be making it a priority to use



The Nexgen and Screen Builder screen for KLZ – with it, operators can run a live show without being in the studio.

VNC instead of the more capable and convenient Team Viewer.

I was able to get several people set up here in Denver. We did our three operations managers of the four stations as well as one of our writer/producers. They have all also been given VNC access. The rule for Team Viewer is, get on, get your work done, and get off. If they are able, they have been told to use VNC. This is the same for the other markets we have using this program. I have created logins and they have been told get on, get their work done and get off.

The time working at home isn't about getting your eight hours in every day. It is about being efficient. Things are not going to be convenient for anyone.

I learned that with Wheatnet, having four channels of audio, that Team Viewer is too dumb to know to use all four channels. So while our people can hear some audio remotely when they are checking things, they cannot mix things down. Thankfully we aren't 100% shut down yet, so many of the people who do station work (not office people) can still go in and get their work done.

I do want to give a huge shout-out to Jay Tyler at Wheatstone. We have the older G6 surfaces

with the TDM system and because of that, remote access isn't really an option. With the newer AOIP surfaces like our E6s in our production rooms, we actually do have the program (Glass-E) that can give us remote access to the surface. We can do everything you would do if you were dealing with the surface in person.

KLZ is the one station we want to keep live. We have many local live programs that have been giving news out about COVID-19 and where we are as a state and country. You know, important stuff. I spoke to Jay about the possibility of needing to run live shows remotely and needed to know how we could do it. The great thing is, our studios are a hybrid of sorts. We have the TDM system installed, but the heart of NexGen is Wheatnet. Jay was kind enough to get me a copy of Screen Builder.

With that app, I was able to build a screen with four faders, the three audio server channels and our BridgeIT remote codec. Our hosts are able to connect to the BridgeIT to do their shows, then Charlie Grimes can log in to the control room computer and see it all. It's not pretty, but it is doable. We haven't had to use it yet but I am sure it is only a matter of time.

The other thing we did, since at home Charlie has no way of hearing a pre-delay feed, is connect a Ølisten lineØ back up. We used it years ago when we had sports on the station. We had one other station who carried the games call in, and they just broadcast that feed. I am feeding the KLZ pre-delay audio to the coupler so Charlie can call it on his phone and just listen to it in real time, ahead of profanity and diversity delays. The delay is milliseconds rather than several seconds which is what the other methods we tried were.

I know we may not need to use any of this, but I also know that if we didn't get it all set up, then we would need it and wouldn't have it. So again, many thanks to Jay for getting us the program and helping me get it all set up. A true life-saver!

KLTT Back Door

We were finally able to get the back door at KLTT replaced. After the break-in last month, we got the door company out pretty quickly. It took two weeks for the new door to come in. However, they quickly found out someone mismeasured. My dad and I didn't want to sit at home working, so we went to KLTT and hung out all morning while they got the work done. It needs a fresh coat of paint (it came primed and ready to paint), but other than that it is a beautiful thing. Keith will get that done when it warms up a bit more. We had a small cold front

come through, so it hasn't been warm enough to paint.

We did install three more security cameras after the break-in. One looks at the front door, the other looks at the back door and the third looks across the canal at the south gate, which is where the scumbag thief cut the lock and entered the property.

The issue with that gate camera is that while the IR should cover the gate, it sees the light-colored rocks out front and lights that up, leaving the gate area in darkness. I am working on trying to figure out how I could use an IR light and actually make it work. But that is not a huge priority right now due to obvious reasons. But as various projects slow down during this time, I will do my research and see about how I want to do things. Perhaps I will find a solar option and somehow mount it over near the gate, or maybe I will mount something else on the side of the building making sure it aims that way. Only time will tell.

Coming Up

There's no way to predict what all is going to happen with this COVID-19 thing. I am doing my best to remain socially distant from everyone except my parents and husband. Since dad and I do so much together, we figure if one of us gets infected then we're going to share it no matter what. But as I go out in public, I am making it a habit to carry hand sanitizer with me and to keep my hands in my pockets, only touching what I need to and then sanitizing every so often. The hard thing is being distant from others. It is such a habit, when you're talking to someone else, to move in close. I found that with the guys installing the door at KLTT. I was talking to them in the back room with maybe four feet or so of space. My dad walks in and motions to me six feet. It's these habits that are so hard to break.

Even working in studios, I've had to help out a couple of people, and usually I am right next to them or looking over their shoulder showing them something, but now I have to tell them I need six feet,

so they move away from me and let me do my thing. It is inconvenient but it is safer.

I plan on working from home as much as possible with trips here and there to the transmitter sites and a trip once or twice a week to the office to water my plants and to check on things.

As of right now, I have no real projects going on. I will keep an eye on things and deal with any issues as they come. I will be monitoring our corporate Team Viewer account to hold people accountable to the time they use on it. Making sure they aren't walking away while staying logged in. If I see anyone camped out for a long period of time, my orders are to cut them off.



I might even make a trip to the transmitter sites to help Keith get work done. This is the perfect time to get minor projects done at these sites. They are remote, and two or three people even, can work easily in different areas while being socially distant. I need to find the list of all that needs to get done at the sites and just wait and see what the weather will do and then decide if I will go out.

I will say that I am very grateful I am essential. I don't know how many of you are able to stay at home during this time. I find myself going stir crazy so these times of going to my sites or to the office has been a relief.

I pray you all stay safe and well and hope that next month we have something to write about that is more engineering related.

The Local Oscillator
April 2020

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

KKPZ • Portland, OR
1330 kHz/97.5 MHz, 5 kW-U, DA-1

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

KLVS • Denver, CO
810 kHz/94.3 MHz/95.3 MHz, 2.2 kW-D/430 W-N, DA-2

WDCX • Rochester, NY
970 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
970 kHz, 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, 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

WXJC-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT

WXJC • Birmingham, AL
850 kHz/96.9 MHz, 50 kW-D/1 kW-N, DA-2

WYDE-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT



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