The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

Getting Close

It is a well-known phenomenon that the last five percent of a project or task can often take a disproportionate amount of time. I¢m not sure exactly why this is, but it often holds true. This is certainly the case with the new KBRT transmitter facility at Oak Flat in eastern Orange County, California.

Over the last month we have made tremendous progress at the site. Since I last wrote in these pages we have gotten the microwave link to the studio installed and working, providing a broadband (110 mbps) Ethernet path to the site. We have also completed the work at the antenna tuning units and tower bases, gotten the remote control system installed and mostly programmed, established an audio path from the studio to the site all the way into the transmitter (with modulation levels set), and completed the pre-wiring of the remote control system for the auxiliary transmitter, which will be moved from the old site once the new site is operational. Many thanks to Derek Jackson, radio engineer and tower climber extraordinaire, who accompanied me to the site from Denver to install the microwave radio on the tower and help with a lot of other technical tasks at the site.

Tower fences have been completed, and we have made good progress on the ground system, with all four screens wrapped up and the radials mostly completed on the lower two towers (#3 ó SE and #4 ó SW). A good site cleanup has been completed and all

Derek Jackson and the crew from P&R Tower install the 4-foot 11 GHz microwave antenna on tower #1.

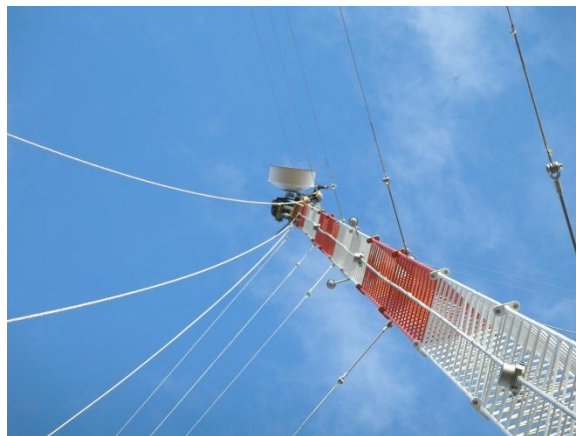the trash and construction debris are gone.

What¢s left is the installation of fabric and gravel over the ground screens and the installation of a road across the entire property, from the entry gate in the southeast corner to the gate in the southwest corner, and a parking apron adjacent to the building.

All that work is scheduled for Monday, December 3, weather permitting.

Weather has been one of the issues that is dragging out the last 5% of the project. Rain, rain and more rain has turned the site into one big mud pit, aggravated by the fact that all the traffic on, through and over the property has turned the normally hard-packed topsoil into about a six-inch depth of what resembles moon dust. As I walk through the site, each step produces a cloud of dust about my feet that reminds me of those 1969 videos of Neil Armstrong and Buzz Aldrin clumsily walking on the moon with similar puffs of thick dust coming up around their boots. All that loose dust has turned to goo with the rain, effectively halting all activity at the site until it dries up. I think as we get deeper into the õwetö season, we can expect some precipitation every few days, so completing the ground system and other work will be a challenge.

Another issue that has come up has been vandalism. We had very little in the way of theft and vandalism throughout the project from last April until mid-November, but on the very night after the general contractor pulled his travel trailer off the site,

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we were hit pretty hard. Some õyahoosö (as polite a term as I can gin up for these folks and their ilk) used a nylon tow strap to pull the stanchion for our entry gate right out of the ground. They then drove in, did õdonutsö around the site, did a burnout on the concrete swale crossing, drove over the top of our silt dam, dove through our neighborøs gate and down into his property, did õdonutsö in his dry pond and then took off.

Vandals used a tow strap to yank the very heavy gate stanchion right out of the ground, damaging the gate beyond repair in the process.

From the very wide wheel base of the vehicle as evidenced by the tracks left behind, we surmise that it was very likely a full-size Humvee (its tracks were more than a foot wider than those of our neighborøs F250 pickup). These õyahoosö evidently tied a heavy tow strap to our gate, got a running start and yanked that gate stanchion out of the ground along with hundreds of pounds of concrete. The gate, which is made of 3-1/2 inch schedule 80 pipe, was bent into a Z-shape and essentially destroyed. The total damage from this one episode was close to $7,000.

A few nights later, either those same õyahoosö or some others rolled the porta-potty down the hill. Very funny.

Thankfully, there was no damage to any of the equipment, towers or improvements at the site. I am very thankful that we have those thick concrete walls around our tower bases. I can just imagine what would happen if some idiot connected a tow strap to one of the tower bases and yanked it off the pier.

We have since replaced the entry gate, beefing it up in the process. We also reset that stanchion in about a yard of concrete. Hopefully, if these bozos try the same thing again, it will be their rear frame member lying in the dirt and not our gate.

All this has made it clear to us that we have to really beef up security at the site. We contracted with a local security/alarm company to install a military-grade security system. Without giving away all our secrets, I will say that while it has the normal door contacts and motion detectors in the building, it also has photosensors in the building compound and inside each tower base enclosure, Doppler radar long-range motion detection of the areas around each of the tower bases and seven high-resolution color day/infrared night cameras covering all the areas of interest. We also installed two infrared illuminators at each tower base and at the building, turning night into day for those cameras. In the event of an alarm, a high-wattage siren will sound and strobe lights will flash on a pole high above the transmitter building compound and atop the wall at each tower base. All this is monitored 24/7, and when there is an alarm, the cameras are instantly and automatically displayed for the operator on duty at the monitoring center. We have contracted with a local armed security company, X-treme Security, to provide regular patrols of the site and armed response to alarm calls.

Someone remarked to me that the site must be in a really bad neighborhood for us to be taking all of these security measures. Thatøs not true at all. The õneighborhoodö is a national forest, but the reality is that it is so remote that thieves, vandals and partyers believe they can get away with just about anything up there. Until now, they were right.

Ground screens are complete and ready to be covered with fabric and gravel.

So what now? I am essentially ready to measure, model and make RF as soon as we have a ground system, so Iøm waiting on that. I have a few little things to wrap up and plan to be at the site the first couple of weeks of this month, weather permitting. Bill Agresta has a long to-do list,

including installing an array of ground rods at each tower base and connecting those to the bottom of each ball gap and each ATU cabinet. We have firmware to update in the APT Horizon Nexgen codecs, and we have to get a reliable VNC connection to the site. I have to readjust a couple of phasor networks to compensate for differences between the design and installed transmission line lengths. And we still need to pan the 11 GHz microwave antenna on tower #1 through a full 30-degree sweep to make sure we're not on a side lobe – I think we are because the signal on the clear path is about 20 dB below what it should be.

Hopefully we'll get all this done before the end of this month. If we can get a two-week stretch of good weather, I think we can.

The fiber-optic cable from the microwave transceiver on the tower splices to the f/o cable from the building on the inside wall of the tower #1 ATU.

This PVC junction box routes the power wires and f/o cable from the microwave radio on tower 1 to conduits to the tower light control box and the PVC (non-metallic) conduit to the ATU cabinet.

The crew from P&R Tower plows in radials.

Tower base fences are complete. We used PVC-coated fence fabric to eliminate the contact burn hazard and the need to ground the fences.

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

Hello to all from Western New York! It was at this time last month that we in Western New York were preparing for what forecasters considered the next õStorm of the Century,ö as hurricane Sandy was churning up the east coast and expected to make a sudden turn into New Jersey and straight through New York State. What had meteorologists concerned was the fact that this hurricane was due to hit Western New York at the same time a cold weather front was pushing down from Canada and another storm was bringing rain up through the Ohio Valley into western Pennsylvania and New York. Weather models at that time were predicting sustained winds at 50 to 60 mph, torrential rain followed by snow that could accumulate well over 2 feet.

With the approach of the impending storm drawing nearer, we were frantically checking all our emergency procedures and equipment while continuing our day to day operations. When the hurricane finally made landfall late into the night, the path had somewhat shifted slightly to the north, hitting New York City the hardest. Flood levels and sea swells were at a level not seen in decades, and the city was not prepared for the damage that was yet to come. We were fortunate here that the prediction models were wrong, and Western New York only received sustained winds at 40 ó 50 mph and several inches of rainfall. WDCX(AM) was without power for several hours, but all our other facilities made it through the event unscathed. The aftermath of this hurricane told of the size and destruction capabilities it had. Over 123 people lost their lives in the US and Caribbean, with damage predictions well over 60 billion dollars in actual property damage and lost revenues.

The only damage we experienced from this massive storm was the failure of a PA module in the WDCX(AM) Nautel transmitter and likewise in the WLGZ-FM BE transmitter. Both failures were likely due to power spikes as the electricity to both sites were going off and on. Other than a few birch trees at the WDCX-FM transmitter site blowing over, we had no power issues and lost no airtime during the entire storm. Needless to say, it was still a long night, staying up and monitoring all our facilities throughout the night and into the next day, waiting and watching, preparing for whatever damage Mother Nature might have in store for us.

WDCX-FM – Buffalo, WDCX(AM) Rochester

By the time this article goes to print, CBC will have another station to add to our repertoire. The purchase of WNED 970 is scheduled to close at midnight Friday November 30th. We will have a lot to do before signing on õWDCZ 970,ö which will simulcast programming from WDCX-FM.

The purchase of this station all stems from the fact that the Canadian government several years ago allowed a couple of stations near Toronto to sign on at 99.5 MHz, causing substantial interference to the WDCX-FM signal in those areas. As our signal is only protected to the border, we had no leverage or ability to contest the startup of these class A stations, and our listeners were not too excited about it either!

We have been pondering since that time, what AM stations in our area would provide us the coverage we were lacking north of Buffalo into Toronto? All of the scenarios we discussed had at least one downside or another, and it seemed that we would just lose that coverage we had enjoyed for so many years. Then, out of the blue, we were informed that WNED-FM was looking to reduce its debt load after purchasing WBFO-FM from the State of New York, by selling WNED(AM). A quick look at the stationøs coverage map revealed that this was very likely Godøs answer to our problem. The station is directional, with its main lobe shooting almost

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directly straight through Toronto, and the bonus is that it is 5 kW full-time with no pattern or power change!

All of the RF equipment is relatively new, with the exception of the five 246-foot self-supporting towers. The transmitter is a Harris DX-5 which is approximately eight years old, with a full-power backup transmitter, a Harris MW-5A. Audio processing for the station utilizes an Optimod AM 9200, and the STL signal from downtown Buffalo to the transmitter site will use a Moseley Starlink 9003Q with a Moseley PCL 6020 and DSP-6000 as a backup.

The station is now broadcasting only in analog, but the equipment is in place for the addition of HD-R in the future. I am not sure why the previous engineer did not get the HD up and running, but this is one of the issues I will be addressing soonest. Also included in the equipment inventory is the Kintronic

phasor network and ATUs, which were purchased and installed in 1988. The transmitter site also has a backup power generator in place, a Cummins/Onan 120KVA diesel powered generator with an auto transfer switch, a must have when those Buffalo blizzards hit!

Next month, I will post some pictures of our new facility, and fill you in on how the STL dish installation went on the roof of the WDCX-FM studios.

Thank You to all that made this purchase possible. The addition of WDCZ 970 will be a great asset to WDCX-FM in helping to spread His message.

That about wraps up another month here in the great Northeast, and until we meet again here in the pages of *The Local Oscillator*, be well, have a very Merry Christmas, and happy engineering!

The Motown Update
By
Joseph M. Huk, Jr.,
P.E., CPBE, CBNT
Chief Engineer, CBC–Detroit

WRDT(AM) Tower Pier Restoration

Two of the WRDT tower base piers were showing cracks and areas where the concrete was crumbling. Therefore it was time to get them repaired. Since the wear was not too severe, the best alternative to installing a new pier or footer would be to encapsulate the existing pier. Therefore, we contracted Sucuso Concrete to perform the encapsulation.

Initially, the contractor measured the

Cracked tower pier (Tower 4) WRDT-AM, before restoration

existing piers so that they could prepare the materials needed to construct a form needed to hold the concrete out six inches from the existing pier. Plywood and 2x4s were used to frame up the form. By the time the frame was finished, there were over 4 outer 2x4 supports to the frame and rods were driven into the ground around the frame to prevent it from shifting due to the heavy weight of the concrete.

A form was constructed to hold the concrete in place until it cures.

Once the form was completed, the delivery of concrete arrived. The concrete truck, at tower #2,

Finished recasting, before reattachment of ground straps.

was able to bring his chute though the gate opening, right to the corner of the form. This made the nursing of the concrete very simple. The contractor was able to direct the concrete to all areas within the volume of the form without any lifting. This was not the case at Tower 4 where the fence opening was not inline with the tower pier. At that location, the concrete was hand carried to the form. Once the concrete reached the same level as the height of the existing pier, many pieces of rebar were placed into varies areas within the volume of the new outer pier to increase its strength. Then the concrete was smoothed out and allowed to cure.

Last the form was removed and the concrete was sanded or ground to make it smooth and level. In addition, a top coat of concrete was applied to the slab so that transition from the old concrete to the new casting was uniform.

After the concrete is fully cured, the contractor indicated that a sealant will be applied to prevent water intrusion that would lead to expansion and cracking. This is the same practice that I will apply to my other concrete tower supports. Last, Russ Harbaugh and I will weld the braze the ground straps back into place for our lighting protection system.

The iPhone 4S Debacle

As I mentioned in a previous issue of *The Local Oscillator*, my Wi-Fi became inactive after an Apple firmware update from OS 5.1 to 6.0. Since then, they came out with a software update 6.01 that was supposed to fix the issue amongst others. However, it did not fix my Wifi issue but luckily, it did not kill my phone either. So, I decided to take the phone to the local Sprint Store to see if they could resolve the issue.

When I brought it in, they performed all of the same procedures I did that were suggested on Internet blogs, like reloading the software update and resetting network settings. After about two hours, they told me they could not fix it. They indicated that the phone was under warranty and could order a replacement.

After a week, my wife received a call from Sprint indicating that my replacement phone had arrived. So, I took my phone into the store to have them switch service from my old phone to the new replacement. The switch to the new replacement only took a few minutes.

I headed for home to do some office work and then received a very odd text from my daughter. She usually calls me rather then texts. She indicated she caught a buck. She was out hunting with her fiancé and wanted to tell a little fib. So I just responded that I couldnot wait to see it.

Well, I figured that it was about time to sync up the address book on the new phone and get things back to normal. When I tried to sync things up with iTunes, I received a really strange message indicating I had no SD card in the phone. So, I looked at the phone number that appeared on the Itunes display and it was not my phone number! It was my wifeos number! Oh no! It turned out that Sprint put my wifeos number on my new phone and my number on her phone. You see, we both have iPhones. So, back to the Sprint Store I went. Meanwhile, my wife was at work and did not know what was going on.

At the Sprint store, they were able to get my phone back to normal. However, without the correct reset command, my wifeos phone would not go back to her correct phone number. The service technician gave me the code to reset my wifeos phone. Eventually, my wife called me at work on their business line and indicated that her phone was not working all afternoon. I told here what happened and how to reset her phone. My wife tried the rest code many times to no avail and was not able to get her phone to operate. Then, on her day off, she went to the same Sprint store to get her phone straightened out. After about an hour, there were finally able to get it to work. Of course here phone was reset to factory defaults and she had to put the phone numbers in manually since she never did a backup. Remember, if there is a software update and things go wrong, you never know who it will affect (LOL).

IOS Print Utility

On a brighter note, once I was able to use the Wifi accessibility of the iPhone again, I want to investigate how I could print directly to a printer.

After doing some reading on the Internet, it appears you need an õAir Printerö compatible printer to print. Since I was not going to go out a printer just for that purpose, I wanted to know if there was utility or print server software that could allow any printer to work. I found a company called Collobos Software that has a product called õFinger Printö that will allow any printer to be an õAir Printer.ö The software is only $20 and installs on a network computer. Every

printer that is installed on that computer is then accessible to any IOS device on the network. The software works great and comes with free upgrades. In addition, the software license can be moved to another computer if needed. So iPhone, iPad, and iPod printing is made easy with õFinger Print.ö

Until next time, be safe, and if all goes well, we will be reporting to you from the pages of *The Local Oscillator* next month. Best regards.

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

I first have to thank God for keeping all of our stations, coworkers, families and friends safe through Hurricane Sandy. Iøve been through several of those things now, and itøs no fun. Thank the Lord that everyone is okay!

The End of... Something

An era? A small piece of Birmingham radio history? However and whatever, the old building at WXJC(AM) in Tarrant, Alabama, is *gone*.

The station originally signed on just after WWII at 5,000 watts. In time, that increased to 10,000 watts, and finally, to a full 50,000 watts with a gently-nulled daytime pattern. The old building was originally the projection and concession house for a drive in theater. You could still see where the concession window and the slots for the projectors had been filled in with cinderblock.

Itøs my understanding that during its heyday as õWYDE Countrypolitanö here in Birmingham, the owners at that time had a studio on Red Mountain, complete with a drive-in window(!). Listeners would drive up to the control room and make requests to the DJ on duty. How successful that was, I canøt say; but it sounds like a fun idea.

When we bought the station in 1999, the old building was already in pretty bad shape. The roof wasnøt leaking, but there were holes in the wall and birds were building nests up over the monstrous
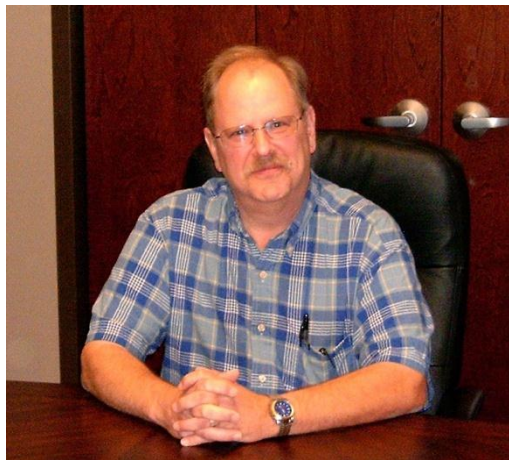
Continental transmitter, where it was nice and warm. The night transmitter was an ancient Gates BC-1G that worked about half the time, and the phasor was a complete nightmare. It was an open-frame mess with jumper cables (literally ó Iøm not kidding) making some of the connections to the towers.

The first thing we did, of course, was redo all of that. We designed a new building, bought Nautel transmitters and a Kintronic phasor and ran all new transmission lines to the towers. But seeing that old building come down really brought back the memories. We had to keep it on the air while we did all of that work. Many was the time that Iød find myself in the middle of that field, splicing a damaged transmission line with hose clamps and copper.

After we moved to the new building, we used the old one for storage for a few years. But then as copper prices went up, the thieves naturally found the building to be an irresistible target. It was hit again and again; by the time we demolished it, there was virtually no copper wiring left inside. *Still* they kept breaking in, even after Jimmy used metal plates and screws to permanently bolt the doors shut. They simply removed those and kept going in. After chatting about it with Cris, we decided to budget just to remove the blasted thing once and for it. It was worse than a nuisance.

Demolishing the old building at 850 AM

To do the work, we called on our old friend Tryg Hoff with Sunbelt Builders. They not only demoed the building, they also cut a trench so that we could re-route the phone line. We installed a pedestal to contain the original demark, then patched the line over to the new building. That must have annoyed the thieves, though. That pedestal had only been in place for a *single day* when the phone line died. Jimmy ran to check and sure enough, the new pedestal had been turned over. I guess they were looking for ó who knows?

At least Alabama has finally passed a law making it much more difficult for individuals to sell scrap metal, and requiring photo ID when itøs sold. For the longest time, we were one of those states that allowed anyone to sell any scrap metal at will. While I hate the loss of freedom and the added inconvenience of the new law, unfortunately, it was needed. I really hope it helps.

HD-R Woes

I mentioned last month that we had sent two HD-R exciters back to BE for repair. We received both of them last month, and Todd did his usual yeomanøs work in getting them back into place and operation. Neither was a pain-free operation: in the case of WXJC-FM, he installed it and it was doing the same thing as when we packed it off and sent it to BE. He called BE support and they suggested that he reinstall the software. That seemed to fix it, but it made me wonder.

The BE support guy said that perhaps the software had become õscrambled.ö That doesnøt make any sense. The bits and bytes on a hard drive are either right, or theyøre not. Same for the firmware encoded in the BIOS. I canøt imagine a scenario in which the software would be good leaving the factory

and somehow, magically, become corrupt while being shipped back. The second mystery is that Todd had already reinstalled the software while he was troubleshooting, before we sent them to BE.

(Oh ó and speaking of shipping, they managed to send the units to Amanda out in Denver. She got them turned around, but that was annoying as well.)

Then thereøs the fact that anytime you upgrade the software, something breaks. You either have to reinstall the licenses (which is a pain in the neck), or the exporter stops working and you have no multicast (which generally also requires a reinstall and re-license). When I say that Todd did õyeomanøs work,ö thatøs not just a throwaway compliment. He bulldogged those things, spent days, and made more than one trip to both WXJC-FM in Pumpkin Center and WYDE-FM in Cullman. But persistence paid off: weøre back in HD on both FMs. Todd has even gotten all the PAD going to the correct places.

I realize that Hurricane Sandy badly disrupted things in New England, so Iøm willing to give BE some slack for that. Maybe they were tied up with stations damaged in the storm. In fact, just prior to that storm hitting the coast, Paul McLane at Radio World had contacted me with an article idea. I didnøt hear another word for several days; apparently, their email server had been in the path of that storm and was down for the count. Glad theyøre back up, and most especially, Iøm glad that everyone is okay.

Midlife Crisis

I guess Iøm past the age where most men have their midlife crisis. Iøm not sure I ever had one; youød have to ask Sandy. But honestly, I have a God who loves me to death (and died to prove it), a wife who loves me, a job that I love, working for people whom I love and respect, doing what I enjoy. What more can you ask for?

Sometimes I do joke with Sandy about it. One of us will mention õmidlife crisisö and weøll crack a few funnies at one another, then move on to more fruitful topics. But the joke was on me when we traveled over Thanksgiving to see her family, just east of Fayetteville, NC. As usual, we flew, because that actually ends up costing the same (or even less, in some cases) than driving, once you add in the extra days, the extra meals and the needed additional motel rooms.

Flying between smaller airports has some benefits. For one, theyøre not nearly as busy as the ones in Atlanta, or Charlotte, or Philly. This time, we decided to fly out of Nashville, which is large enough to be nice, but not so large that you get lost in it. The

Fayetteville, NC airport, on the other hand, is very small. Another drawback is that you almost always get crammed into the little CRJs (Cris calls them "near-jets" and says you don't ride in them – you *wear* them); while fast, those regional jets aren't exactly models of comfort.

On Wednesday before Thanksgiving, we landed at the little itty-bitty Fayetteville airport and headed downstairs to rent a car. I had already reserved one with Budget. The quoted price with the reservation was $88. We got the counter and the girl started asking me if I wanted this extra or that feature. "GPS?" No, my new Android phone does that for free. Don't need it. "Accident insurance?" Well ... just on the car. Don't need the health coverage or the roadside assistance or any of that other expensive stuff.

"How about we upgrade you to a Mustang? I've got one sitting here waiting for you?" I grinned and looked at Sandy. She grinned back and we cracked a couple of jokes about midlife. So, we rented the Mustang and headed out to find her family, who (unbeknownst to us until Sandy received a phone call while I was getting suckered by Budget) were waiting out in front of the terminal.

Of course, when the rental was complete, the sales girl handed me the form and I noted that it was considerably higher than the original quote. *Considerably.* Now, you seasoned travelers – Cris, Laura, Mr. Crawford, the rest of you – you know all the scams. You know how to say, "No, just give me the basics." But this girl must've seen me coming. With shaking hands (we were already running behind and her family was waiting), I signed the contract, sighed and grabbed the keys.

Yes, I drove this. And hated it.

"At least I can enjoy my midlife crisis," I said to Sandy. Hey, the car was cute: it was a white

Mustang fastback, one of the new ones that has been built to look just like the old ones. The girl at the counter had suckered me into buying the "prepay option" on the fuel (don't *ever* do that), so I figured I had to find some way to drive a tank full of gas out of that thing in a single day.

The car was indeed fast; it accelerated wonderfully. But that's where my enjoyment ended. It handled like a telephone booth that had been nailed to a skateboard. The seats were uncomfortable. The stereo didn't sound bad, and the cruise control worked – not that I got to use it much, given that Sandy's family lives in the middle of nowhere, just past Autryville, NC. And I desperately wanted to drive that tank of gas out of it; no luck. I figured with us out in the sticks like that, we could just go cruising after Thanksgiving dinner, but no one was interested. So... the car basically sat there for most of the day. I returned it with over 3/4 of tank still in it.

I'm glad I've never had a real midlife crisis. If a pretend, just-for-fun crisis can be that expensive, I don't even want to know what the real thing might cost!

High Speed Internet (Maybe) (Someday)

We contracted with Windstream months ago to install Metro Ethernet, a 10 megabit up and down connection to the Internet. They use ATT lines, of course, but buy in bulk from Momma Bell and then pass the savings on to us. (No, I don't understand it, either; why ATT doesn't just lower their prices and do it themselves, I have no idea.)

Anytime you're dealing with two different companies like this -- *especially* when they're Telcos, which aren't known for snappy customer service in the first place – it adds a whole 'nuther layer of complexity and aggravation. ATT has been to this site at least three times so far, each time telling us something different, and each time, we have accommodated them. We also had a change in project managers at Windstream (and no one told us; we found that out when we tried to contact the original one.) Windstream basically says they're waiting on ATT. All they do is provide the router and provision everything through "their" network – in quotes for a reason.

But perhaps there's a light at the end of the tunnel. We received a call from Windstream this morning, as I was typing this: they're ready to go. ATT has pushed the install date back *again*. But if we can just get ATT to install the equipment and run the fiber from outside, we'll be in business.

Once that's finally done, we'll move the mail server to this building and have everything

under one roof. We'll also eliminate the tangled hodge podge of DSL lines that we currently use to provide Internet to the offices, access for VNC, streaming audio and other needs. Everything will come from that one Windstream connection.

We still plan to use ClearOS (or something like it) to do the bandshaping and filtering, though.

One thing that I've learned over the years is that it doesn't matter how much bandwidth you have. People will find a way to use it and leave you screaming for more.

That's it for this time; until next month, have a great Christmas and pray for this nation!

The Chicago Chronicles
By
Art Reis, CPBE, CBNT, AMD
Chief Engineer, CBC–Chicago

It's That Time Again

First of all, please don't ever forget whose birthday we're celebrating on the 25th. Jesus *is* the reason for the season. Let me say that I cannot tell you all how blessed I've been this year. In that matter, it's been the best year I've had for blessings since, maybe, the year I met my late wife Susie. And though this month also marks the fourth anniversary of her passing, my loss has also given me hope that maybe, some day, I will pass into the glory into which she's already gone.

Count your blessings, folks. They're the greatest things you could ever have. Happy Christ-Mass. And don't mention "Holidays" or any of that other stuff to me.

More Things They Don't Tell You in the Book

Much of our HD transmitting equipment here is first generation, or, if you will, "legacy." Being one of the first station groups in the nation to broadcast HD gets you that. Recently, we got word from the factory that the transmitter and exciter programming software should be upgraded. Well, the code we've been using has worked fine so far, so why fix what ain't broke? But, the factory CSD persisted, so we finally went ahead and did it.

We have two HD transmitters of this particular type, at WPWX and WSRB. WSRB's hybrid (FM+HD) rig is full-time on air. The WPWX HD-only box was recently moved to aux status. For that reason, we decided to upgrade that unit first. But, when we loaded the software, the transmitter would work, period. To make this long story shorter, after

changing out everything else and getting two replacement supervisory control boards from the factory, the one part of the upgrade that we thought was solid was the defective one: the software chips on the module control board. Once those two were replaced using the chips originally intended for the WSRB rig, the transmitter came up.

But the fun was just starting. The spectrum analysis of the output was blooming like an orchid. Re-growth city. We and the factory CSD chased our tails on this one for *weeks*. Then I took some time off to go to the Wisconsin Broadcasters Association Engineering Conference in Madison. After giving the company sales manager what-for about this problem, he directed me to one fellow who had migrated from the CSD to another department, who should be returned to CSD, I swear. I called him up and he dug right in, and he had the answer in less than two hours. The cause was a glitch in the exciter upgrade software we were using. The particular version we'd been sent puts out a spurious signal on 92.16 MHz, 140 kHz off our frequency. A simple change in software versions eliminated the problem and put the rig back on line. But, who of us out in the field could possibly have known that? After all, it isn't written in the book.

An Era Ends

I can't believe it. Well, almost. This month, the last DAT machine in any of our control rooms was taken out of service at WYCA for lack of use.

Well, almost lack of use. The board operators in ÷YCA had been using the one they had for its headphone jack. Weøve been using DATs here

since 1997, but the board op manager recently told me that no clients had brought in any DAT tape for air in over a year. Since we in engineering are on a project to try to organize and remove any unused inputs and outputs of our Wheatstone system, it made the decision to take out the DAT machine rather easy. Another headphone amplifier will replace it.

Weøve already started to sell our machines. One went out the door just before Thanksgiving, and another has a pending sale. All of ours seem to be in good shape. They really didnøt have that much use in them. If you know anyone who wants one, drop a line to me (e-mail address below) or to Cris, and let us know. Weøll tell you how much when we hear from you.

What's Wrong With This Picture?

Hereøs a good one for you. Take a look at the picture to the left and see whether *you* can figure out what, if anything, is so unusual about it. This really should be easy. Send your answer to me at areis@dontron.net, and Iøll print the names of the first ten who answer correctly, next month.

Until then, blessings of the Season to you and yours.

The Portland Report
By
John White, CBRE
Chief Engineer, CBC–Portland

Musings After the Campaign Commercials and Vote Count

Earlier this year I talked a bit about an unconventional political commercial. The in-the-know political consultants told us this commercial was a bad idea, painting Portland as a creeping malignancy.

A bit of background: The Portland metro area actually occupies four counties: Clackamas; Multnomah; Washington; and Clark County, Washington. The city of Portland is primarily Multnomah County but extends into Clackamas and Washington Counties.

Metro, a regional planing agency in the tri-county area, and the city of Portland generally drive the land use and political decisions. Just one


example, Metro and Portland are forcing adoption of light rail in Vancouver, a city in another state. Vancouver has voted no twice; altogether there have been five light rail no-votes in the metro area.

The city of Milwaukie and Clackamas county have felt the Metro/Portland pressure to install light rail. The culmination of the pressure led to the Clackamas county commissioners, just days prior to a county wide spending limit election, approving a $20 million bond to pay for light rail, a plan that was hatched in secret by three commissioners and brought for a no-notice vote of the full commission.

Oregon political consultants did not hesitate to slam the Clackamas County political advertising: õStop Portland Creep!ö was an ill-advised campaign

11
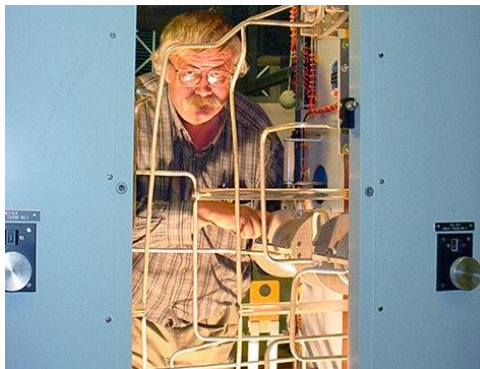
that would backfire. The Conventional Wisdom passed its verdict.

The Clackamas County rebels ignored that and posted a billboard on I-205 not far from the KKPZ transmitter site. Green and flourishing on the right side, black clouds of doom on the left. õStop Portland Creep ó Vote Tootie and Ludlow.ö

The results: The Tootie/Ludow team won. I guess that says something about political consultants and advertising that connects with people.

Parts Containers

During the remodel and studio move to Mt. Scott, I lost a lot of engineering space. Since then I have more than once been looking for a bolt, nut or washer, lost in one of several boxes of boxes. So in November, I decided to reorganize.

In the past I have used recycled food containers for small part storage. That works well for larger parts but consumes and wastes space for small parts. Another problem is that many of the workbench drawers are very shallow and most hardware and parts boxes are too large to fit. Instead,

the drawers become filled with scattered stuff in no particular order.

One day as I was shopping for printer paper, I happened to notice small desktop containers which looked like they may fit in the shallow drawers. In fact they did. I now have a good start for organizing terminal lugs, nuts and bolts as well as other formally loose parts.

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

I know they say the older you get, the faster time goes. I must say, if that is true, it must seem like warp speed at some point. The holiday season is here already. Thankfully, though, it has meant a quiet month. Last month seemed to be plagued with problems. While some of these problems have yet to be solved, they have disappeared for now.

Wheatstone

One morning, one of our board operators came to me telling me that they could not set anything on one of our G6 control surfaces. They were attempting to get set up for a live on the phone interview, so they needed to change some mix-minuses around. Normally when we have an issue like this, I can reset the power and it comes back to life. Not this time. I reset the power supply and the satellite router in the room. Nothing.

Speaking with Wheatstone tech support,

they told me to go into the X-Point program and õReset Switch.ö Because there was a possibility it would interrupt anything being done on the surfaces in the various studios, I had to wait about an hour to do the reset. It was simple, just click Reset Switch in the program and it was done. It took several minutes for everything to come back on, but when it did, it all worked.

KLTT's Omnia… Again

During the middle of November, people began to notice the HD side of KLTT wouldnøt always have audio. I normally check all the stations at least a few times a day to make sure they are on air and everything is okay, so I picked up on this issue myself fairly quickly. I went out to the site and rebooted the Omnia5.ex and everything came back fine. The only anomaly I found was that one of our

AES DAs at the site was indicating 48 kHz instead of the normal 44.1 kHz. I looked in the settings in the Omnia and everything looked fine.

Since the issue of the HD side not working properly came back again, I turned the digital signal off until I could figure out what was going on. The digital audio comes from output 2 on the Omnia and from there is fed to an AES DA that splits that feed to the main and aux transmitter exgines. Clearly the problem was, as indicated on the DA, an incorrect sample rate.

Unfortunately, there wasnøt a place in the Omnia menus to change the sample rate of that output. After speaking with Omnia support, they informed me there are jumpers inside the unit that need to be moved for the rate to be at 44.1 kHz. If I wouldøve read through the manual before calling them, I would have figured this out on my own. I honestly didnøt even think to look at a manual. We had an issue similar to this in the past and I thought it was a menu issue, not a jumper issue. I am very grateful to Omnia for the help.

After moving three jumpers to the proper position, I am glad to say everything came back perfectly. Well, almost. I did have a bit of a scare. When I initially powered on the Omnia, it froze on the boot-upscreen. This is what happened with the original unit for the site, which had to be returned to the factory for repair. This time though, the õspareö (actually the original KLTT Omnia) was in California being used at the new KBRT site. So if the Omnia5.ex wasnøt going to boot up properly, we were going to be off the air until I could figure something out. I decided to power down again and turned it back on. Thankfully, this time, it came back

fine. The rate was correct as well. Since this unit had been our spare and on the shelf since it was last used several years before, all I could figure is that my predecessor had never changed the output sample rate jumper and let the sample rate converter in the old Nautel EASU unit take care of things. Live and learn.

Looking Ahead

December is upon us, which means busy times. While I always look forward to spending time with family, I will be glad when January arrives and things can start slowing down again. I am, however, looking forward to going back to California to help finish getting KBRT ready for operation. I was able to go at the very beginning when we were just testing to measure the ground conductivity at the site. We set up a temporary antenna and I got to walk the rugged terrain to do field strength measurements. This time I will get to see the finished site in person, see all the progress that has been made, and help with the finishing touches.

I am also looking forward to my first Christmas as a newlywed. We have family coming up from Texas which will make it a fun time. I will also get to celebrate with my new kitty. I had to put my ten year old cat down after her health began to decline with no hopes of getting back to the way she was. The new kitten is a sweet 2-month old tortie. She is very adventurous and naughty. Hopefully by Christmas she and my 2-year old cat will be getting along better. Right now, thereøs just a lot of hissing, big fuzzy tails and hiding.

That about does it for this edition. I pray you all had a great Thanksgiving and have a very merry Christmas! Until next timeí thatøs all folks!!!

Digital Diary
by
Larry Foltran
Corporate Website & Information Technology Coordinator

The 64-bit Upgrade

A couple of months ago, I received a call from a friend who had become quite frustrated while attempting to upgrade his Windows XP computer to Windows 7. Each time he tried, he would get a set up error stating that the installation disc wasn¢t compatible with his version of Windows. After a bit of back and forth, I discovered that he was trying to upgrade his 32-bit XP operating system to the 64-bit Windows 7 operating system. This is something you certainly can¢t do with a straight upgrade.

Why Not? Well in simple terms, the 32-bit system handles applications ó and data in general ó differently than the 64-bit system. So software needs to be installed in a specific way in using a specific version depending on what flavor operating system you intend to use. The two types of operating systems also handle RAM differently, in which the 64-bit system wins the prize in terms of amount of useable RAM. Although both the 32-bit and 64-bit operating systems share the same GUI (Graphical User Interface), they are quite different under the hood.

So can I upgrade? Yesí and no. Although the upgrade disc can still be used, the 32-bit technically can not be upgraded to the 64-bit system. A clean install is required when making this move. All of the data must first be backed up as you would do if wiping the computer completely clean. Then, the custom installation option on the 64-bit upgrade disc must be selected. This will clear all data from the selected partition on the storage drive and install the 64-bit Windows 7 operating system if the format option is selected. If you choose not to format the drive, the Windows installation process saves your data to a windows.old directory where the new operating system is installed. I personally prefer to format the drive and truly make it a clean install.

Once complete, you can move the data back to the upgraded computer, although all of your desired software will need to be re-installed to ensure it runs within the new architecture. Upgrade the RAM as well and you have a 64-bit computer that should run like a champí provided your hardware can handle it.

So the remaining question is why upgrade to a 64-bit system? The primary benefit of the 64-bit system and primary reason users move to it, is its ability to process more data at a faster pace. If you primarily surf the web day in and day out, you won¢t see much benefit in a 64-bit system. Heavy applications such as video production, photo editing, or gaming can certainly benefit from a 64-bit system and increased RAM.

At one point not too long ago, the 64-bit OS was something geared towards a specific part of the PC user market. Today, it¢s nearly impossible to find a Dell or HP computer for sale with anything but a 64-bit operating system. So for those holding on to their older computers, whether or not to upgrade to x64 is certainly an important question. I suppose the answer falls to how old the computer actually is. Although 64-bit compatible drivers are much more widely available now than before, many components within an XP era computer may not be compatible with the more robust operating system. In my opinion, look at what the computer is used for when attempting to make this decision. If you don¢t need the extra processing and RAM usage, stick with the 32-bit operating system. Although I can guarantee that the next computer you buy will come with 64-bits under the hood and more RAM than you¢ll know what to do with.

Merry Christmas

God willing, we¢ll be greeting 2013 with the next edition of *The Local Oscillator*. So I¢d like to take this opportunity to send out a Christmas greeting to those reading this article (you can pass along my greeting to those who aren¢t reading it). I pray that you enjoy a wonderful Christmas season with family and friends. In this hectic world we live in, may you take the opportunity to slow down a bit and be reminded of all the most important things in your life.

Merry Christmas and until next month!

KBRT • Avalon - Los Angeles, CA
740 kHz, 10 kW-D, DA
KCBC • Manteca - San Francisco, CA
770 kHz, 50 kW-D/1 kW-N, DA-1
KJSL • St. Louis, MO
630 kHz, 5 kW-U, DA-2
KKPZ • Portland, OR
1330 kHz, 5 kW-U, DA-1
KLZ • Denver, CO
560 kHz, 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, 50 kW-D/1.4 kW-N, DA-2
KLVZ • Denver, CO
810 kHz, 2.2 kW-D/430 W-N, DA-2
KSTL • St. Louis, MO
690 kHz, 1 kW-D/18 W-N, ND
WDCX • Rochester, NY
990 kHz, 5 kW-D/2.5 kW-N, DA-2
WDCX • 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

WEXL • Royal Oak - Detroit, MI
1340 kHz, 1 kW-U, DA-D
WLGZ-FM • Webster - Rochester, NY
102.7 MHz, 6 kW/100m AAT
WRDT • Monroe - Detroit, MI
560 kHz, 500 W-D/14 W-N, DA-D
WMUZ • Detroit, MI
103.5 MHz, 50 kW/150m AAT
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, 5 kW-D/41W-N, ND
WYDE-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT
WXJC • Birmingham, AL
850 kHz, 50 kW-D/1 kW-N, DA-2
WXJC-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT

CRAWFORD
BROADCASTING
COMPANY
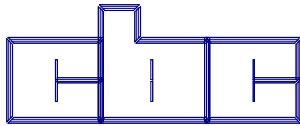
Corporate Engineering

2150 W. 29th Ave., Suite 300

Denver, CO 80211

email address: crisa@crawfordbroadcasting.com