

The Michigan NDB Tour

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Photos by Russell Robins N8HOQ
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Introduction

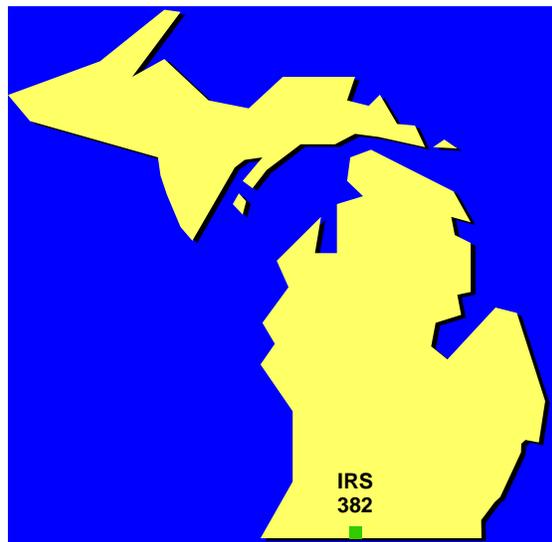
Since falling by accident into the hobby of DX-ing non-directional LF radio beacons, I often wondered what these “stations” beeping away in the night looked like. I listened to NDBs for months without seeing one even from a distance. But I had read about NDB touring in Sheldon Remington’s *The Art of NDB DX-ing*, and by July 2001 curiosity finally got the better of me. So, my brother Russell and I began a series of trips to visit as many NDB sites in our home state of Michigan as we could. This is an account of the fun we had along the way, with other bits of useless information that may interest fellow NDB fans.

One may legitimately ask why any sane person would listen to radio signals that consist entirely of slow Morse code characters repeated endlessly – let alone visit the transmitters that send them. This is a hard question to answer. In my case, it has to do with the challenge of hearing very low powered signals with modest equipment. I’m also interested in just about anything having to do with aviation. Finally, I hope to document the NDBs in Michigan before they vanish forever. These relics of the earliest days of radio navigation are surely in their twilight years and it would be a shame if they passed into history without a requiem, inadequate as this one may be.

Southwest Michigan

Our tour got rolling on the morning of 28 July 2001 from my brother’s house near Kalamazoo’s airport. In the days before, I plotted the exact position of each NDB we planned to visit using DeLorme’s *Street Atlas USA*. This eliminated the fun of direction finding but was a real time saver.

Although Russ was recovering from a business trip the day before, he was still game – after a strong cappuccino revived his spirits. We piled equipment for the expedition into my car and headed out. Russ brought his digital camera to document the trip visually. He also took his handheld GPS receiver, which came in very handy when we got lost several times, in spite of our advance cartographic research. My bag had an old Realistic DX-440 (Sangean ATS803A) portable receiver and a small Sony MR-Z55 minidisc recorder to capture the sound of each beacon we visited. Our first time out, we planned to visit five NDBs in our own corner of the state.



We headed east on I-94, then south on state highway M-66, to visit the first NDB on our list: **IRS** on 382 kHz in Sturgis. This turned out to be a roundabout way of getting there, however it was a nice day and we enjoyed the ride. Sturgis is a small town in Saint Joseph County, just north of the Michigan-Indiana state line. **IRS** is the beacon for Kirsch Municipal Airport there and is classed by the FAA as “MHW” with a power of 25 watts.

After briefly losing our bearings and taking an unplanned tour of Sturgis' small industrial park, we made our way to the airfield. The antenna for **IRS** was immediately evident as we rounded a small hangar and parked along a runway. The NDB is located at the center of the airport in what appears to be a bean field. Like the airport, it owned by the City of Sturgis. Despite the fact that it was a sunny Saturday morning, there was little activity on the field. One small twin was preparing for departure but appeared in no hurry to leave. A Bell Jet Ranger helicopter and several other small aircraft sat idle on the apron. The field has two runways: 18/36 and 06/24. Approach and departure control are handled by Kalamazoo (AZO). There is no tower, so pilots use the Unicom frequency 123.050 MHz to announce their intentions. AWOS is available on 121.325 MHz.



The most striking thing about **IRS** is the great length of its antenna. The horizontal “top hat” element is strung between two 30-foot red and white telephone poles parallel to Runway 06/24. The transmitter for the beacon is in a small, weatherproof housing mounted on a post halfway between the two poles. The connection of the vertical radiating wire to the horizontal wires looks rather crude. Even so, **IRS** has a big signal at my home in Kalamazoo, 30 miles to the NNW. It almost always dominates the 1020 Hz sidebands of 382 kHz and is virtually impossible to null completely with the loop. SP in Springfield, Illinois, will also be heard well on this frequency, but only on the -1020 Hz



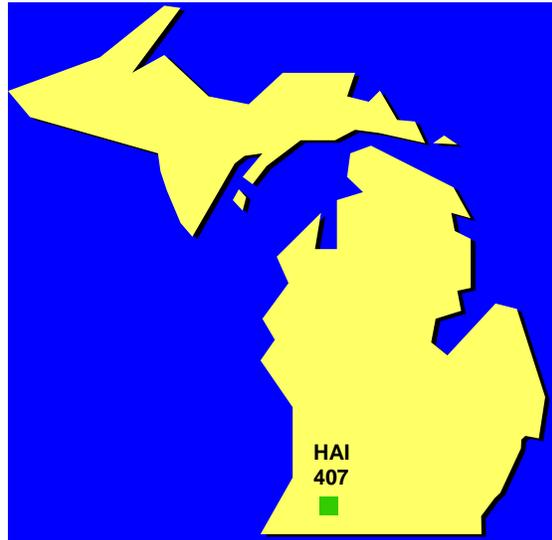
offset. On spectacular nights, you may hear POS in Port of Spain, Trinidad, with its +1020 Hz DAID signal. This one is about 2,630 miles away from me and is the second-most distant NDB I've logged to date, after Easter Island's IPA on 280 kHz. That one is more than 5,000 miles away and set a distance record I doubt I'll break anytime soon.



Our next stop was Three Rivers, Michigan - the home of powerhouse **HAI** on 407 kHz. Three Rivers is also in Saint Joseph County and is about twenty minutes from Sturgis on state highway M-60, via US 12 and US 131. The Three Rivers airport is on M-60 just east of town. The NDB is in the MHW class and is about as plain as they come with two telephone poles

supporting an end-fed single-wire. The antenna runs parallel to the airport driveway with the transmitter inside the small house that serves as the airport office. The antenna feed line enters the building through a small hole punched in the wall. The City of Three Rivers owns the airport and operates the beacon.

There is no tower at Three Rivers, so traffic approaching and departing D.R. Haines Municipal Airport is controlled from Kalamazoo. Unicom is on 122.8 MHz, the most common frequency used for this purpose at uncontrolled airfields in Michigan. When we visited, the field was even sleepier than the one in Sturgis with no activity observed on the ground or in the air. However, this somnolent atmosphere does attract student pilots who would rather practice here than at Kalamazoo/Battle Creek International Airport, which is a lot busier. There are two runways at Three Rivers: 09/27 and 05/23.



Despite its rudimentary antenna, **HAI's** 40-watt signal is extremely strong in Kalamazoo, about 30 miles north of the airport. Nevertheless, 407 kHz has been a fairly "productive" frequency for me. AQ in Appleton, Wisconsin, and IL in Wilmington, Ohio, are almost always audible day or night on 1020 Hz offsets. H from Montreal's St. Hubert Airport is also a regular at night on the +400 Hz side. Others heard on 407 kHz include RZZ in Roanoke Rapids, North Carolina; RXW from Watersmeet in Michigan's "Upper Peninsula" and IE in Natchitoches, Louisiana. Receiving these is a lot easier when **HAI** is off the air, which can be the case for days or weeks at a time. I suspect someone may switch the beacon off and forget to turn it back on.

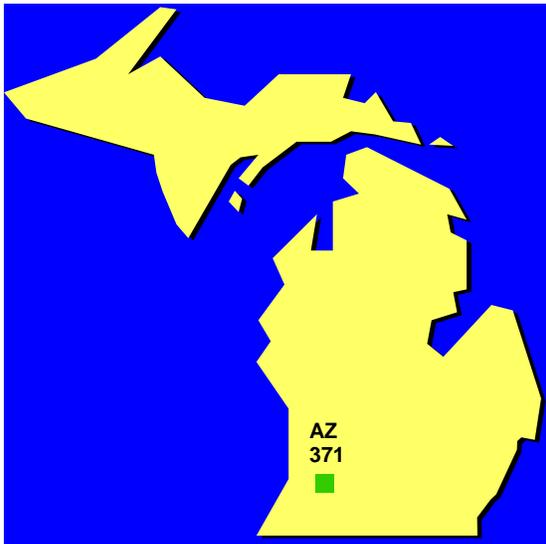
Having fortified ourselves with lunch at the Three Rivers McDonald's ("the taste that stays with you through four states"), Russ and I headed north to visit our local NDB: **AZ** on 371 kHz in Kalamazoo. Unlike the first two beacons, this one is not located at an airport. That's because it is a "locator outer marker" (LOM) beacon for the instrument landing system (ILS) at Kalamazoo/Battle Creek International Airport. **AZ** is on the northern edge of the small village of Vicksburg, 6.3 nautical miles from the southern end of Runway 17/35. We tried to find it the previous week, following directions from someone who had been there, but couldn't see it because large trees surround the site. We were more persistent the second time and succeeded.



To reach **AZ**, it's necessary to travel down a short two-track dirt road. A landscaping company that grows evergreen trees and bushes owns this private drive. The NDB sits on the edge of the company's tree lot and is very near a paved pedestrian path converted from an abandoned railway line. It uses the triple-wire, horizontal "top hat" antenna found at many FAA-operated LOMs in this part of Michigan. To the side of the transmitter hut is the antenna array for the 75 MHz ILS outer marker, for which the NDB is the "locator". For some reason, these Yagis are always painted bright red. Pilots home in on the NDB, and when they're directly overhead, the OM triggers a light telling the pilot to intercept the glide path for the ILS.

Since it is only eight miles south of my home, **AZ** has a devastating, S9+ signal, despite the fact that its

transmitter only runs 25 watts. This has not prevented a number of other 1020 Hz beacons on 371 kHz from being heard, however. AI in Anderson, Indiana, LTD in Litchfield, Illinois, and RYV in Watertown, Wisconsin, are all heard well, day or night. After sunset, PUR in Marshall, Missouri; FQW in Murfreesboro, Tennessee; TZT in Belle Plaine, Iowa; and ACQ in Waseca, Minnesota, may appear. GW in Kuujuarapik, Quebec, is a regular on the +400 Hz offset.



The airport **AZ** serves is a busy regional facility with flights by Northwest, United, American, US Airways, Continental and Air Canada, or their affiliates. The main runway (17/35) is only 6,500 feet long and that limits the airport to DC-9/MD80's and smaller regional jets and turboprops. General aviation aircraft use the shorter runways 09/23 and 05/27. The tower at AZO is on 118.3 MHz for civilian traffic and 308.6 MHz for military aircraft. Approach and departure control use 119.2 and 121.2 MHz, which are paired with 255.9, and 340.9 MHz. If there's too much traffic to handle on these primary frequencies, 123.8 MHz is also available, but it is rarely used. ATIS operates on 127.25 MHz, ground control on 121.9 MHz,

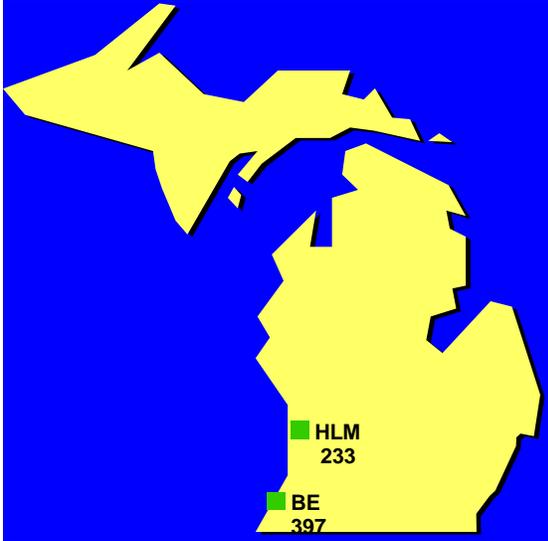
clearance delivery on 121.75 MHz and the Unicom channel monitored by Duncan Aviation is 122.95 MHz. The airport is also the home of the Kalamazoo Aviation History Museum, better known locally as the "Air Zoo". Until they were grounded because of insurance problems, the Air Zoo flew immaculately restored examples of many fighter aircraft from World War Two and the Korean War. The museum still offers pleasure flights aboard its equally pristine Ford 5AT Trimotor built in 1929. The museum uses 129.15 MHz to talk with its aircraft and this frequency is also "Air Boss" during the annual "Warbirds Over Kalamazoo" fly-in held in July.

The VOR (Visual Omni Range) beacon at the airport identifies as [AZO](#) on 109.0 MHz. The "localizer" for the ILS identifies as [I-AZO](#) on 110.9 MHz.

From Kalamazoo, we headed west on I-94 to visit [BE](#) on 397 kHz, the LOM for the ILS at Southwest Michigan Regional Airport in Benton Harbor. It and "twin city" Saint Joseph are on the shore of Lake Michigan, about 100 miles northeast of Chicago. However, **BE** is just over five nautical miles to the southeast of the airport near the tiny crossroads of Millburg, south of the freeway exit at Coloma. The beacon is the locator for the Runway 13/31 ILS outer marker. The field also has two other runways: 09/27 and 18/36.

Finding **BE** isn't easy, even with its location pinpointed on the map, although it's only about 0.2 mile south of Kaiser Road in rural Berrien County. The NDB is on the edge of an orchard and the "official" access road is the farm's driveway. Russ and I decided to approach from the east, however, using a dirt two-track on a neighboring farm that grows squash and





zucchini. The track runs past mobile home trailers used by migrant farm workers who must have thought we were out of our minds. From the outside, **BE** looks almost identical to **AZ**, except that its transmitter shack is a bit smaller. They look so similar that my brother remarked it appeared the FAA had dumped “NDB kits” around the area for quick assembly.

The Benton Harbor airport used to have a control tower but this was closed by the FAA some years ago to cut costs. The airport uses the old tower frequency 123.0 MHz as Unicom. The VOR beacon on 116.6 MHz identifies as ELX. Approach and departure control are handled by South Bend, Indiana,

on 118.55 MHz.

The 25 watts of interference **BE** generates have made 397 kHz a rather disappointing frequency for me. I’ve also logged these other 1020 Hz beacons: JE in Jefferson City, Missouri; CIN in Carroll, Iowa; CIR in Cairo, Illinois; and MXO in Monticello, Iowa. From Canada, A in Hamilton, Ontario, is a 400 Hz regular despite its extremely modest power of 14 watts.

Russ and I wrapped our first NDB excursion by heading north to the Lake Michigan port of Holland, using the GPS receiver to navigate through a maze of construction detours. As its name implies, immigrants from the Netherlands founded Holland, although its population today is increasingly diverse with many Latino residents joining the descendents of the original Dutch settlers.



Holland’s NDB **HLM** on 233 kHz definitely gets the “Hide In Plain Sight” Award. Its antenna runs next to a paved bicycle path along 152nd Street, not too far north of Lake Macatawa. Park Township Airport is immediately to the west. Except for the warning sign posted on the transmitter hut, no one probably would guess that it is a navaid transmitter – unless they are dyed-in-the-wool NDB Nuts. The **HLM** antenna is a simple

center-fed horizontal single-wire. The transmitter of the MHW class runs 25 watts and is operated by Park Township



Park Township Airport has two runways: 05/23 and 12/30. The latter is closed from November to March, and when covered by snow. It is an extremely small field with no tower, Unicom being on the usual frequency of 122.8 MHz. Approach and departure control on 119.8 MHz are handled by the airport at Muskegon, Michigan. Using binoculars, we could see a small sign on the fence at the end of Runway 05 warning departing pilots not to make any turns until reaching 1200' MSL to avoid annoying nearby residents.

Years before discovering that his brother was mad about NDBs, Russell had an interesting experience flying into this

field in a two-seat "ultralight" aircraft. A bit low on gas, he and his partner landed on the grass next to the runway, then taxied to the street and proceeded to pull into the gas station on the corner. They departed after filling their tank, leaving an open-mouthed audience behind.

Because it's only 48 miles away, **HLM** manages to be a major "pest" for me on 233 kHz, in combination with another 25-watter, PDR in Ottawa, Ohio (by coincidence, **HLM** is located in Ottawa County, Michigan). Their one-two punch has so far prevented reception of other NDBs on either 1020 Hz offset. On the +400 Hz side, however, I hear QN from Nakina, Ontario, almost nightly and BR in Brandon, Manitoba, very infrequently.

Two weeks after our first trip, Russ and I dragged his youngest son along to visit the last semi-local NDB on our itinerary. **BT** on 272 kHz is the LOM for the Runway 05/23 ILS at W.K. Kellogg Airport in Battle Creek. It's named for the man who founded the breakfast cereal company that has its world headquarters in the City.

BT is not an easy NDB to find, even after you pinpoint its location on the map. It is 4.4 nautical miles NNE of the airport on Yawger Road and is hidden from view by large trees. The short gravel access road is right next to a private home. A high, barbed wire fence completely surrounds the site, making it very hard to get a good photo. **BT** uses the triple-wire horizontal top hat antenna found at AZ and BE, and the hut enclosing the transmitter is also very familiar.

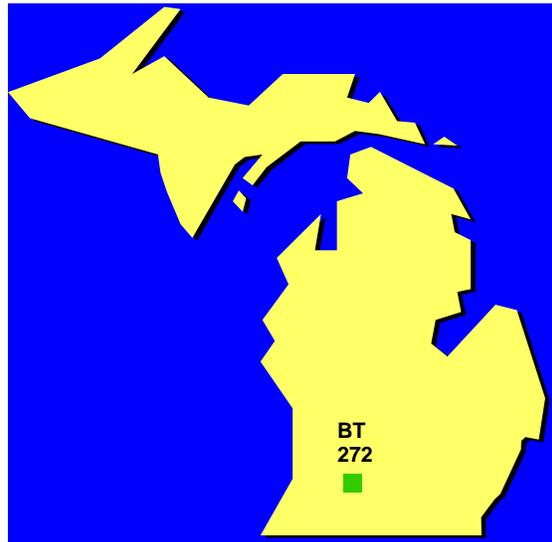
Kellogg Airport has no scheduled air passenger service but it is a busy hub for freight aircraft. It is also the home of Western Michigan



University's College of Aviation and the 110th Fighter Wing of the Michigan Air National Guard. Despite its name, the 110th flies the A-10A "Thunderbolt II" ground attack jet. The unit was active in the Gulf War and more recently over the skies of former Yugoslavia. BTL's tower uses 118.5 MHz; ground control is on 121.7 MHz and ATIS is on 128.325 MHz. The VOR beacon on 109.4 MHz identifies as BTL.

"Milair" enthusiasts have a lot of fun listening to ANG operations in Battle Creek. The tower there uses 239.0 MHz for military traffic while ground control is on 348.6 MHz. The ground control transmitter gets out remarkably well and can be heard on a handheld scanner in parts of Kalamazoo, 20 miles away. The Air Guard command post ("Freebie") uses 267.8 MHz and 140.4 MHz in AM mode. Also keep an ear on 263.1 MHz, the Chicago ARTCC remote site in Goshen, Indiana, and Kalamazoo's UHF approach and departure control frequencies. The aircraft of the 110th also use a number of narrow-FM, VHF-low band channels for tactical air-air and air-ground coordination. These include: 41.9, 41.8, 46.85, 36.85, 32.35, 32.45, 34.1, 34.6 and 41.45 MHz. Other ANG frequencies that may be in use at BTL include 385.9 (operations) and AM tactical channels 142.3, 141.55, 140.6, 140.0, 139.9 and 139.7 MHz.

If this isn't enough excitement, the Battle Creek ANG base also uses several narrow-FM frequencies for ground operations. The aircraft maintenance channel, 143.875 MHz, gets heavy use when the A-10s are arriving or departing. Occasionally, one will land with a live but malfunctioning bomb or rocket dangling from a hardpoint. That's guaranteed to generate interesting traffic on 142.0 MHz (Fire/Crash) and 142.5 MHz (Munitions). The other base frequencies are 142.575 MHz (operations); 142.55 MHz (command net); 142.075 MHz (disaster preparedness) and 142.525 MHz (security). None are used much except the security net. Unfortunately for me, this is simplex, so I get only one side of the conversation.

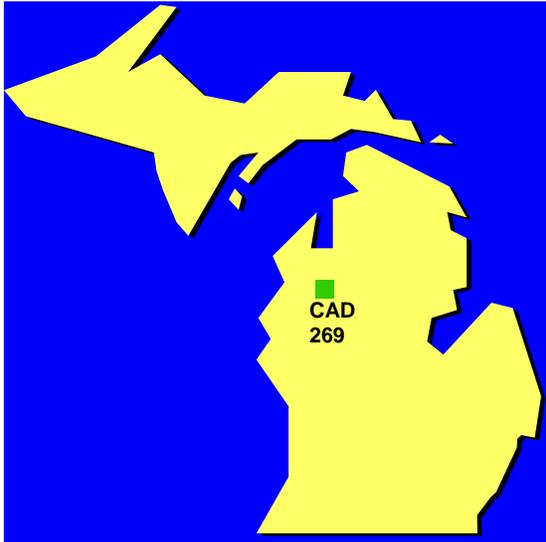


Back in the NDB world, **BT** and its 25 watts only 21 miles away do a very good job making reception of other 1020 Hz beacons on 272 kHz difficult in Kalamazoo. Adjusting the orientation of the loop helps knock down the signal enough to pull in a few others, though, including IK in Kankakee, Illinois; CB in Columbus, Ohio; and TYC in Campbellsville, Kentucky. GP way up in Grand Rapids, Minnesota, has appeared just once. Canadian YQA in Muskoka, Ontario shows up almost every night on the +400 Hz offset. The only other Canadian I've heard on this frequency is W at Montreal's Mirabel Airport in Quebec.

Northwest Michigan – Part One

Our second NDB hunt had to wait until 2 September 2001. We got on the road early for the three-hour drive to the northwestern part of Michigan's Lower Peninsula. This is

probably one of the most scenic areas of the State, however Russ and I were headed places few, if any, tourists ever see.



The long drive allowed us to admire earth's celestial companion glowering on the western horizon and speculate about the optical illusion that makes a "harvest moon" look so big. After another stop at the "Golden Arches" for breakfast in Big Rapids, we arrived at the airport in Cadillac for a look at its "homing" beacon, [CAD](#) on 269 kHz. It runs the usual 25 watts but has an interesting variation on the "flat top" antenna - two wires that run parallel in the vertical plane rather than the horizontal version that's common in the southern part of the State. Two metal towers support this array instead of the wooden "telephone" poles usually found at NDBs of this kind. The beacon is a few hundred feet from the

hangars of a private flying club at the end of Sixth Avenue, off 13th Street west of US 131. There are no fences but we didn't press our luck and stopped just beyond some bushes next to the hangars.

Cadillac doesn't have a VOR of its own, or a tower. Unicom is on 122.8 MHz and AWOS is available on 128.325 MHz. Ground is on 121.725 MHz. The runways are 07/25 and 18/36. The latter is closed from December through March, and when covered by snow, except for aircraft equipped with skis. The wise pilot will keep an eye out for deer that



wander onto the runways.



CAD fights with **FN** in Flint, Michigan, for control of 269 kHz back home in Kalamazoo. Knocking one down with the loop usually increases the strength of the other. However, I have also logged **OSX** in Kosciusko, Mississippi; **TII** in Tiffin, Ohio; and **BEX** from Bloomfield, Iowa, on 1020 Hz offsets. **UDE** in Delta, Manitoba, shows up fairly often on the +400 Hz side, especially in the hours before dawn.

Almost two hours after leaving Cadillac, we found **TV**, the LOM for Cherry Capital Airport in Traverse City. As you might guess from the name, Traverse City is in the heart of Michigan's fruit country. Although most cherries still wind up in pies, enterprising farmers have come up with ways to make all sorts of unlikely products from their fruit, including hamburger patties and sausage.

The source of **TV**'s signal on 365 kHz is 6.6 nautical miles due east of Runway 10/28, in the Pere Marquette State Forest. The beacon lies behind a farmhouse on Bunker Hill Road. The access road for the NDB and the farm's driveway are one and the same.

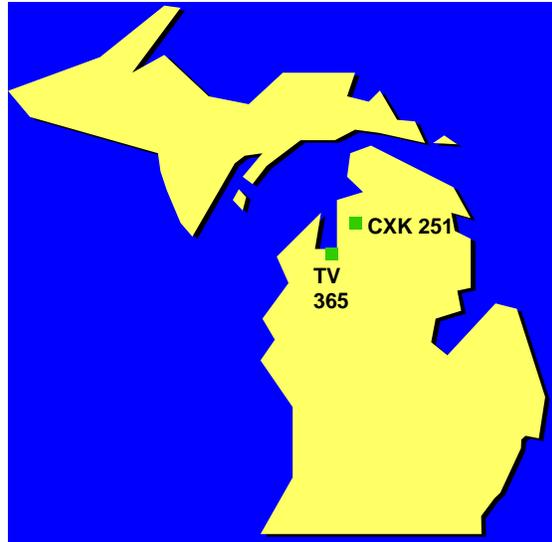
TV was the first "vertical" NDB antenna we encountered on the tour. The small housing for the transmitter is at the base of the guyed tower and a hut nearby holds the equipment for the outer marker beacon on 75 MHz. I recorded the unusual [sound](#) of this transmitter using an Alinco DJ-X10 hand-held scanner.

When I stopped at the farmhouse to ask if we could drive back to the transmitter site, I had an interesting conversation with the woman who owns the property. She said the FAA had twice signed 15-year lease agreements for use of her land. But she said the



agency only offered her a three-year extension in 2000. She added that officials told her they didn't expect NDBs to be around much longer. Bad news for beacons. But, after a cheerful warning to mind the bull on the other side of the fence, she told us to go back and take as many pictures as we liked.

Anyone who goes on an NDB tour should always seek permission before crossing private property. Many LOM beacons are on farms or in someone's backyard. It's not worth the ill will and a possible trespassing charge to barge in uninvited. Fences with the usual warning signs surround most FAA-owned NDBs. However, other beacons, especially those at airports, are often in the open. *Never* cross active runways or taxiways to get a closer look. To do so is hazardous to your health and a violation of federal law. Ask someone at the airport office if you have a question about whether access is permitted. Luckily for the NDB-minded tourist, Russ and I have found that many beacons on airport property, and even some LOMs, are actually quite close to public roads and very easy to see without taking unnecessary risks. If you are fortunate enough to get close to an NDB's antenna and transmitter, look all you want but touch *nothing*.



You'll find the VOR for the Traverse City airport on 114.6 MHz identifying as TVC. For some reason it is 4.6 nautical miles from the field instead of on airport grounds, as is usually the case. The I-TVC "localizer" beacon for the ILS is on 110.7 MHz. Traverse City's tower operates on 124.2 MHz, ground control is on 121.8 MHz and the ATIS uses 126.0 MHz. Pilots in the area communicate with Minneapolis ARTCC on 132.9 MHz.

Cherry Capital Airport has two runways - 18/36 and 10/28. It wouldn't be a northern Michigan airport without a warning to watch out for gulls, geese, deer and even wild turkeys that might take unauthorized strolls down the runway.

Back home in Kalamazoo, **TV** takes turns with FT in Fort Worth, Texas, and AA in Fargo, North Dakota, dominating the 1020 Hz offsets of 365 kHz at night. But it has the channel to itself during the day. Although it is Michigan's most powerful NDB at 300 watts, the signal from **TV** is not especially strong. Others heard on 1020 Hz offsets include MNF in Mountain View, Missouri; PBC in Columbia, Tennessee; PTS in Pittsburg, Kansas; and FKV from Gainesville, George. SYZ in Shelbyville, Illinois, is a lot closer but only pops up every now and then. I've heard just one 400 Hz NDB on this frequency and it's south of the Canadian border: JN in Muncie, Indiana. Both of its sidebands are audible around the clock.



From Traverse City, we headed north into Antrim County and what turned out to be the biggest adventure of the day. Finding [CXK](#), the beacon for the County's small airport in Bellaire, Michigan, proved to be a bit more than we bargained for. This 25-watter on 251 kHz is atypical of "homing" beacons in that it is not located at the airport. The transmitter site is on the edge of a gravel pit 5.6 nautical miles SSW of the field, off Alden Highway. After passing through the small town of Alden at the southern end of Torch Lake, we attempted a shortcut by taking West Elder Road. This quickly turned into a one-lane dirt path suitable only for four-wheel drive vehicles and our borrowed Saturn sedan wasn't up to the challenge. So, we changed strategy and decided to approach the **CXK** from the north. The coordinates on the map indicated that it would be a tenth of a mile northeast once we got to the end of Musico Road. But this turned out to be little more than a driveway for several farmhouses. Even

worse, the road ended much sooner than the map indicated. Figuring the owners of the property wouldn't appreciate unauthorized moto-cross events; we backtracked and were about to give up when Russ spotted a dirt two-track off of Alden Highway. This was the access road for the gravel pit, which was shutdown for the Labor Day holiday. We got about halfway down the path before the sand got too deep, forcing us to pull off to the side and hike the rest of the way up the hill.

We were rewarded at the top with the sight of **CXK**'s transmitter and antenna perched on a bluff overlooking the pit. Its metal "TV-antenna" towers and sideways flat top look similar to the one at CAD in Cadillac. But where CAD is all spic-and-span, **CXK** is rusty and rather down at heel. The small shelter for the transmitter is made of unpainted plywood, with only a "High Voltage" warning sign to indicate what's inside. The scene would have been almost idyllic with the insects chirping and the wind blowing through the trees, were it not for the ugly gravel mine and its crane in the background.

After we got back to the car, our sense of adventure reached new heights when we briefly got stuck trying to get to the main road. I got out and scooped loose sand away from the front tires with my hands, then pushed as Russ carefully maneuvered us out of what nearly became our own private sand trap.

Antrim County's airport is a small affair with a single runway heading 02/20. Unicom is on 122.7 MHz with AWOS using 119.275 MHz. Pilots can remotely activate the ground communication system by keying their radio on 121.725 MHz four times. Only jet and turbine-powered aircraft are required to pay landing fees, which are waived with the

purchase of fuel. Pilots are cautioned to watch for the usual assortment of wildlife at all times as well as large snow banks during the winter months.

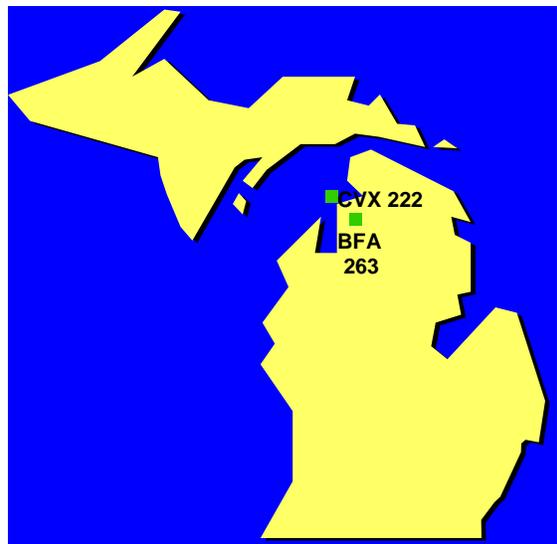
I don't hear **CXK** often in Kalamazoo but when I do it is almost always in the hours just before sunrise. Its frequency suffers heavy interference from several other beacons that are closer to my home, especially FW in Fort Wayne, Indiana, which is on a nearly reciprocal bearing. The loop doesn't help much in that kind of situation. The other 1020 Hz NDBs I've heard on 251 kHz are PRO in Perry, Iowa; OEA in Vincennes, Indiana; and JZY in Macomb, Illinois.

Next stop - Charlevoix, Michigan, and an NDB mystery. **CVX** in this resort town on Lake Michigan had been off the air for quite some time. The airport's old NDB was dismantled



to make way for a new terminal building and construction of its successor had just been finished before we arrived. The FAA database gave two sets of coordinates for the new beacon. We discovered that both were fiction rather than fact as we drove through a neighborhood east of the airfield without seeing a thing. Fortunately, Russ saw what we were looking for as soon as we got back on US-31 - two black telephone poles on the airport grounds, about two thousand feet south of the old beacon site. A quick check of 222 kHz revealed that **CVX** was still off the air. Charlevoix Airport Manager Karyn

Brooks said re-activation of the NDB was expected in mid-September 2001, after a final flight check by the FAA. But in yet another mystery involving this 25-watt "homer," the 2001 Michigan Airport Directory from Michigan Bureau of Aeronautics gives the frequency of **CVX** as 392 kHz. The pilot information card from the bureau says it's on 222 kHz. Time will tell which is right.



Charlevoix Municipal Airport's main runway is 09/27 but there is also a much shorter one running 04/22 that's closed in winter. In the absence of a control tower, unicom is on the

familiar frequency of 122.8 MHz with AWOS on 119.925 MHz. Ground communications are on 121.725 MHz.

After seeing CVX, it was time to begin the long drive back home – with one stop to see [BFA](#) in Boyne Falls. This 25-watt beacon on 263 kHz is owned by Boyne Mountain Lodge, which has a private airstrip that caters to the wealthy golfers and skiers who make up much of its clientele. We didn't find any obvious way to get closer than about three-tenths of a mile, so we settled for a somewhat distant view from the road that leads to the resort from US-131.



The Boyne Mountain Airport uses 122.8 MHz for Unicom traffic and 122.85 MHz for other communications.

BFA is very hard to hear in Kalamazoo, thanks to the 263 kHz “Double Team” of GR in Grand Rapids, Michigan, and GGP in Logansport, Indiana. Just two other 1020 Hz NDBs have made it past the curtain of interference: LQL in Willoughby, Ohio, and BGF in Winchester, Tennessee. Neither is heard very often. On the +400 Hz side, though, things can get interesting some nights with the two T's in Timmins and Thunder Bay, Ontario, competing with YGK in Kingston.

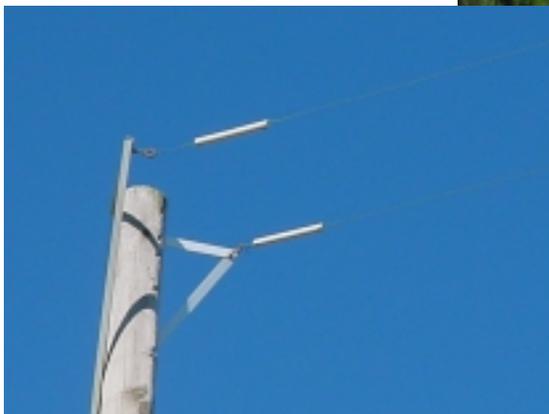
Shortly before Russ and I went north, our friend and fellow NDB enthusiast Doug Klein of Hastings, Michigan, had a chance to visit one of the state's most interesting beacons. For more than 20 years, [SJX](#) on Beaver Island in northern Lake Michigan has been a 25-watt “renegade”. It stubbornly insists on using the “split” frequency of 381.5 kHz instead of its assigned channel of 382 kHz. This 500 Hz discrepancy puts the ident for **SJX** on 382.5 kHz – right where DX-ers expect to hear a Canadian, if the 1,000 watts of YPL in Pickle Lake, Ontario, don't get in the way



(which they often do). In between YPL and **SJX**, little 50-watt XU in London, Ontario, occasionally comes through on a good night.

It is fitting that an island with an outlaw NDB has a nonconformist history of its own. Now a vacation spot, Beaver Island was best known in the mid-19th century as the home of “King” Jesse Strang and his band of dissident Mormons, who set up an independent “kingdom” in the middle of Lake Michigan in 1847. It lasted until 1856, when political and economic rivals on Mackinac Island assassinated him.

The paddle wheel gunboat *USS Michigan* played a role in this affair, a story well told in Bradley A. Rodgers’ book *Guardian of the Great Lakes*. The *Michigan* was the U.S. Navy’s first iron-hulled vessel and remained in continuous service on the Great Lakes from her launching in 1844 until she was decommissioned in 1919. The ship was renamed the *USS*



(SJX photos courtesy Doug Klein)

Wolverine in 1905 because the name *Michigan* was needed for a new dreadnought-class battleship. Her hulk wasn’t finally broken up until 1949.

To Be Continued...

Russ and I eventually hope to visit all of the other active NDBs in Michigan as well as some that are now just a memory. All of the following are (or were) 25-watt beacons:

- | | | |
|------------|----------------|--------------------------------|
| ADG | 278 kHz | Adrian |
| AMN | 329 kHz | Alma |
| AP | 206 kHz | Alpena (out-of-service) |
| BHW | 236 kHz | West Branch |
| CI | 400 kHz | Sault Ste. Marie |
| CM | 275 kHz | Hancock |

DE	338 kHz	Detroit
DM	223 kHz	Detroit
DQV	378 kHz	Deckerville (decommissioned)
DRM	218 kHz	Drummond Island
DT	388 kHz	Detroit
EY	275 kHz	Port Huron (decommissioned)
FN	269 kHz	Flint
GDW	209 kHz	Gladwin
GKL	332 kHz	Lewiston (decommissioned)
GL	375 kHz	Gaylord (out-of-service indefinitely)
GR	263 kHz	Grand Rapids
GYG	359 kHz	Grayling (out-of-service indefinitely)
HYX	385 kHz	Saginaw
IMT	236 kHz	Iron Mountain (decommissioned)
JX	212 kHz	Jackson
LA	206 kHz	Lansing
LDM	341 kHz	Ludington
MB	254 kHz	Manistee (out-of-service indefinitely)
MB	257 kHz	Saginaw
MK	219 kHz	Muskegon
OGM	375 kHz	Ontonagon
OZW	243 kHz	Howell
PH	332 kHz	Port Huron
PZQ	215 kHz	Rogers City (status?)
RXW	407 kHz	Watersmeet
RYS	419 kHz	Grosse Ile (Detroit)
SO	410 kHz	Marquette
TCU	239 kHz	Tecumseh (one of only two "private" NDBs in Michigan)
TN	239 kHz	Menominee (status? Actually near Marinette, Wisconsin)
UIZ	215 kHz	Utica (Detroit)
VQ	230 kHz	Detroit
YI	359 kHz	Ypsilanti (Detroit)

Sadly, these marine NDBs in Michigan have been silent since they were decommissioned in 1996 (list courtesy Dave Tomasko in Chicago):

PT	285 kHz	Pentwater North Pierhead Light	25 watts
PX	285 kHz	Presque Isle Breakwater Light	25 watts
HO	287 kHz	Holland Harbor Light	25 watts
C	289 kHz	Keweenaw Entrance Light	25 watts
W	289 kHz	Poe Reef Light	25 watts
GV	290 kHz	Gravelly Shoals Light Station	25 watts
M	290 kHz	Detroit River Light	5 watts
FR	291 kHz	Frankfort Light	25 watts
PR	293 kHz	Presque Isle Light	50 watts
M	298 kHz	Manitou Island Light	75 watts
ST	300 kHz	Manistee Pierhead Light	2 watts
TW	300 kHz	Tawas Point Light	75 watts
CR	302 kHz	Charlevoix Light	20 watts
AL	303 kHz	Alpena Light	5 watts
X	305 kHz	Passage Island Light Station	75 watts

OT	307 kHz	Detour Reef Light Station	30 watts
L	308 kHz	Ludington Breakwater Light	50 watts
SL	308 kHz	Port Sanilac Light	2 watts
MQ	310 kHz	Manistique Light	25 watts
KL	314 kHz	Keweenaw Entrance Light	25 watts
P	314 kHz	Fort Gratiot Light	50 watts
X	315 kHz	Grays Reef Light	25 watts
GO	316 kHz	Grand Haven Entrance Light	25 watts
WF	318 kHz	Whitefish Point Light Station	75 watts
NU	320 kHz	North Manitou Shoal Light Station	8 watts
U	320 kHz	Harbor Beach Light	50 watts
J	321 kHz	Eagle Harbor Light Station	75 watts
C	322 kHz	Muskegon South Pierhead Light	75 watts
RD	322 kHz	Round Island Passage Light	25 watts
JJ	325 kHz	Saint Joseph Pierhead Light	40 watts



Meet the Authors:

Andy Robins is the news director of WMUK (FM), the public radio station at Western Michigan University in Kalamazoo. He became a Technician Class amateur radio operator in 1993 and has been a DX-er of one sort or another since 1970. His current passion is DX-ing non-directional LF radio beacons. His other radio interests include aeronautical utilities on the HF bands. Andy's "shack" includes Yaesu FRG-100 and Collins 51S1 receivers and a slightly beat-up Radio Shack DX-440 for NDB road trips. On the ham bands, he uses a Yaesu FT-100 and an Alinco DJ-580T. He can be reached by e-mail at andrew.robins@wmich.edu

Russell Robins is a research scientist at Pharmacia Corporation. He got his Advanced Class ham ticket in 1986, after a two-year stint as Novice WN8QZE during the 1970's. He built Andy's ten-foot air-core LF loop from plans supplied by Steve McDonald VE7SL in British Columbia. Russell's radio interests include talking to as many Russians as possible on 20 meters with only five watts, using his Yaesu FT-817 transceiver. He has an FT-100 too, but it's becoming jealous of the '817. He also participates in Andy's NDB "hunts" with grace and good humor.



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