Voice of America

Dixon Relay Station, Dixon, California.

Photos taken in 1977 by Bob Goodrich
E-mail radio3412@bak.rr.com

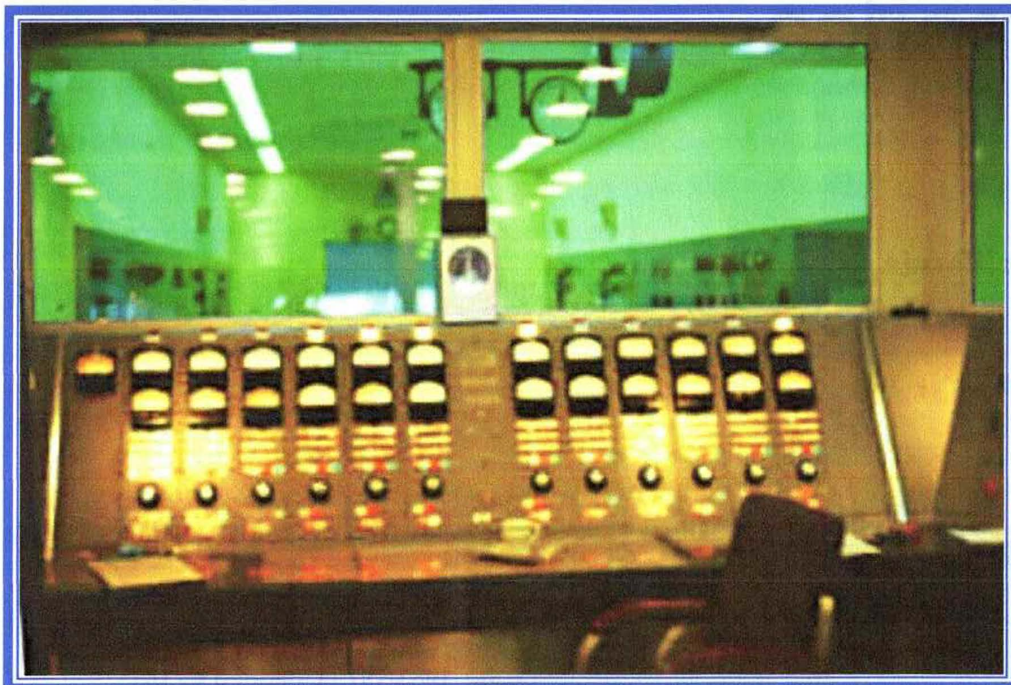
1944-1963 Operated by NBC
1963-1979 Operated by US Government USIA, ICA
1979-1983 Mothballed with caretaker crew
1983-1988 Operated by US Government USIA
1988 Decommissioned.

Transmitter complement

DX-1 RCA/Federal 200 KW
DX-2 , DX-3 RCA/Federal 50 KW
DX4 , DX-5 General Electric 100 KW
DX-6, DX-7, DX-8 Collins 250 KW
DX-9, DX-10 Continental 20 KW

North concourse.

View from front door toward the control room.

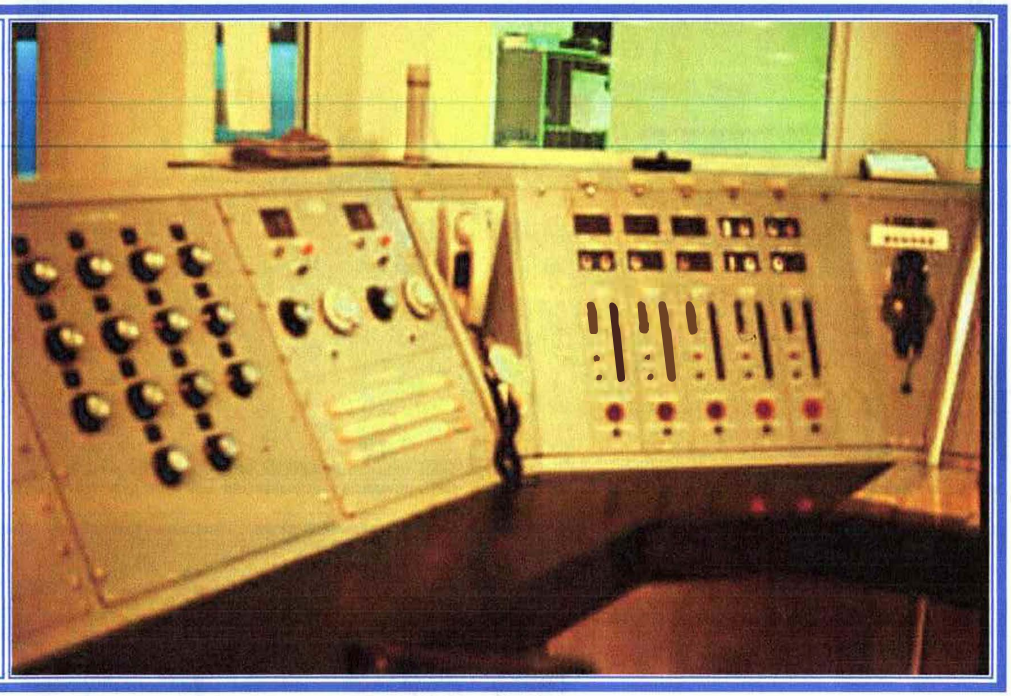


Master control console

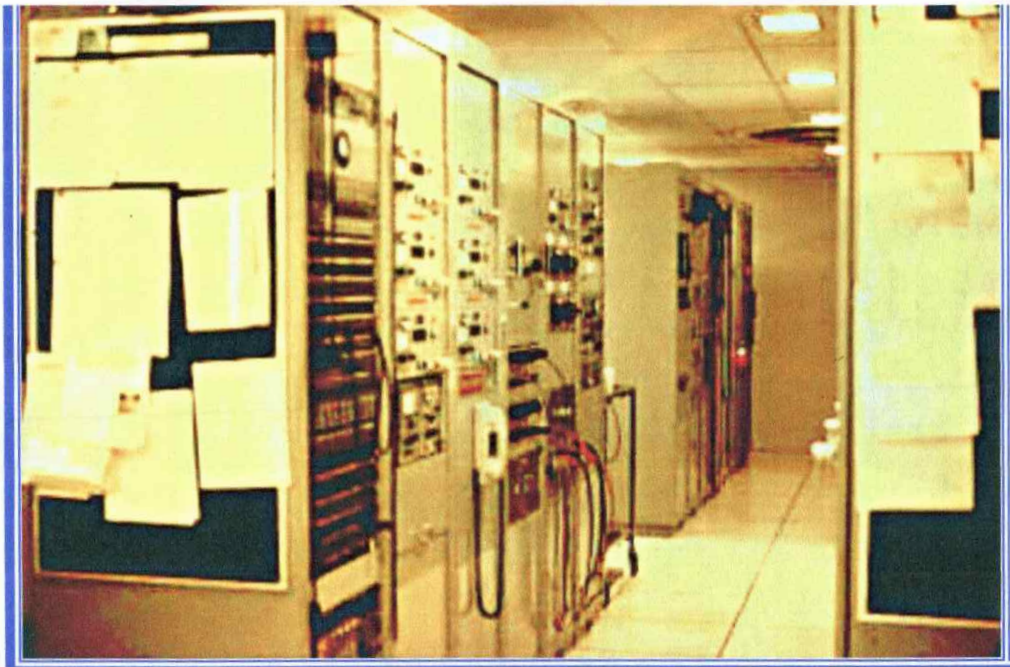
One vertical column for each transmitter
White light - transmitter is on the air
Top Meter - off air monitor from modulation monitor
Bottom Meter - audio into transmitter
3 rows of switches, select various audio sources
4th row of switches, applies audio source to the transmitter
Daven attenuator for control of audio level
Next two rows of switches, remote control of transmitter.

DX-4, DX-5, DX-6, DX-7 and DX-10 USB on air at time of photo.

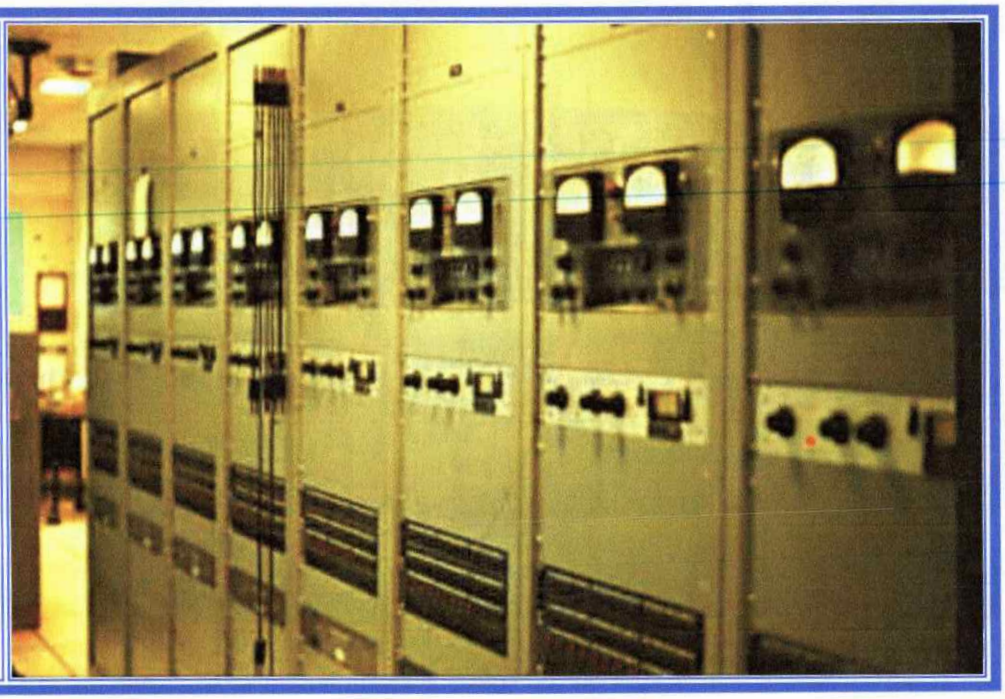
Located to left of console.
Audio Cartridge announcement selection,
Monitor speaker selection, and station alarm panel
white phone is intercom to various locations
Antenna selection panel .
Similar panels located to right side of master control console.
Antenna selection panel, Monitor speaker selection and
Two way radio remote control .



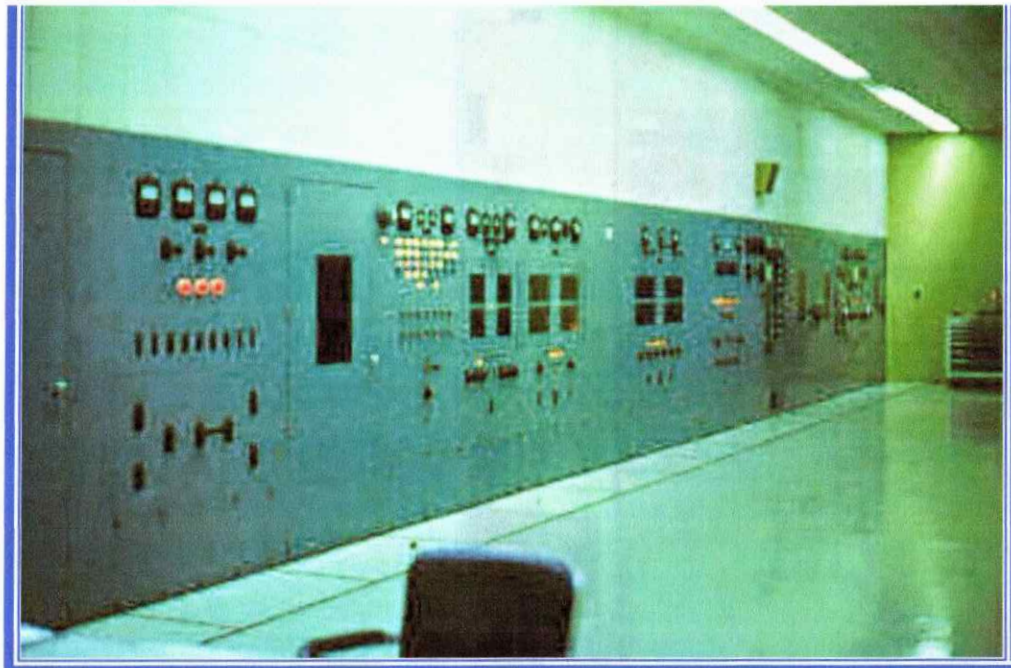
Frequency control
Epsco synthesizers.
Other miscellaneous racks containing
Collins 51J3 receiver,
HP frequency counter
Antenna interlock control
Incoming program lines and amplifiers

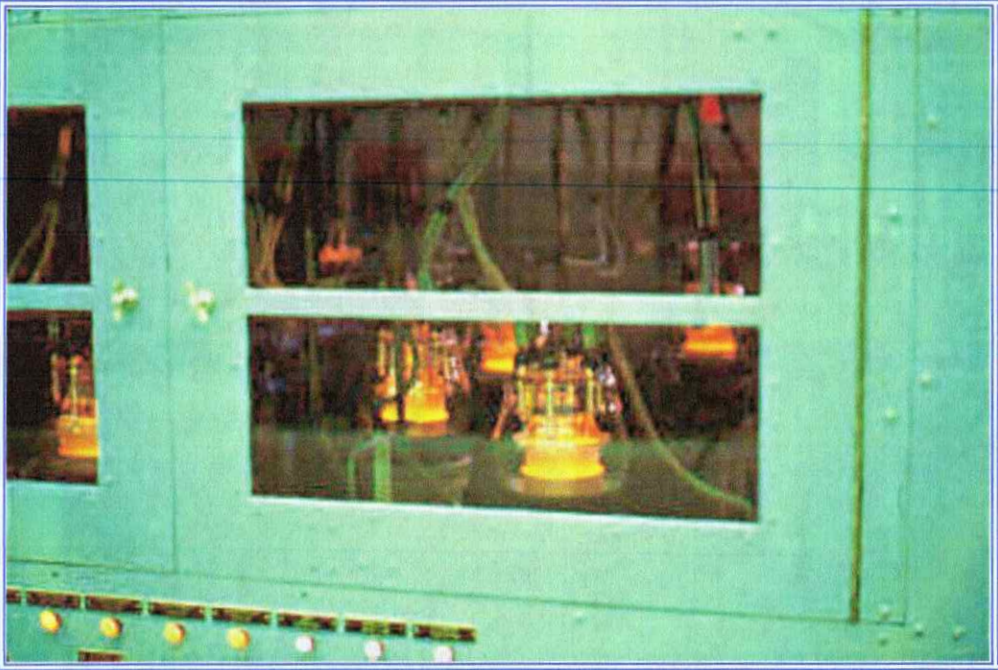


Control room racks,
One rack for each transmitter
Gates Modulation monitor,
UREI audio limiter,
Kahn Symetrapeak .



DX-1 200 KW RCA/Federal transmitter
200 KW RF final amplifier
50 KW RF driver.



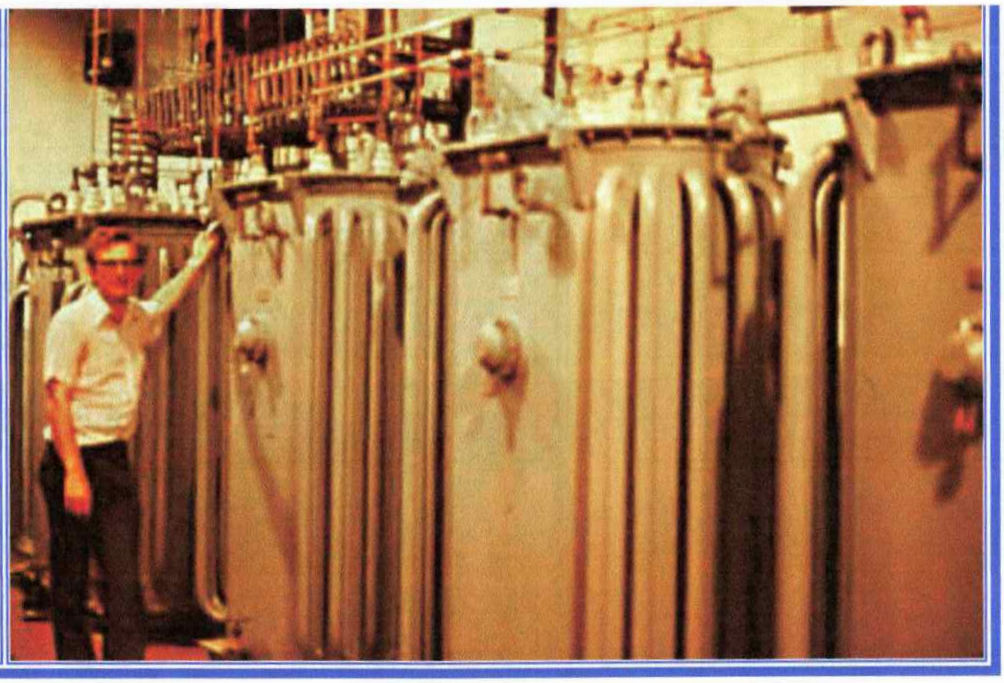


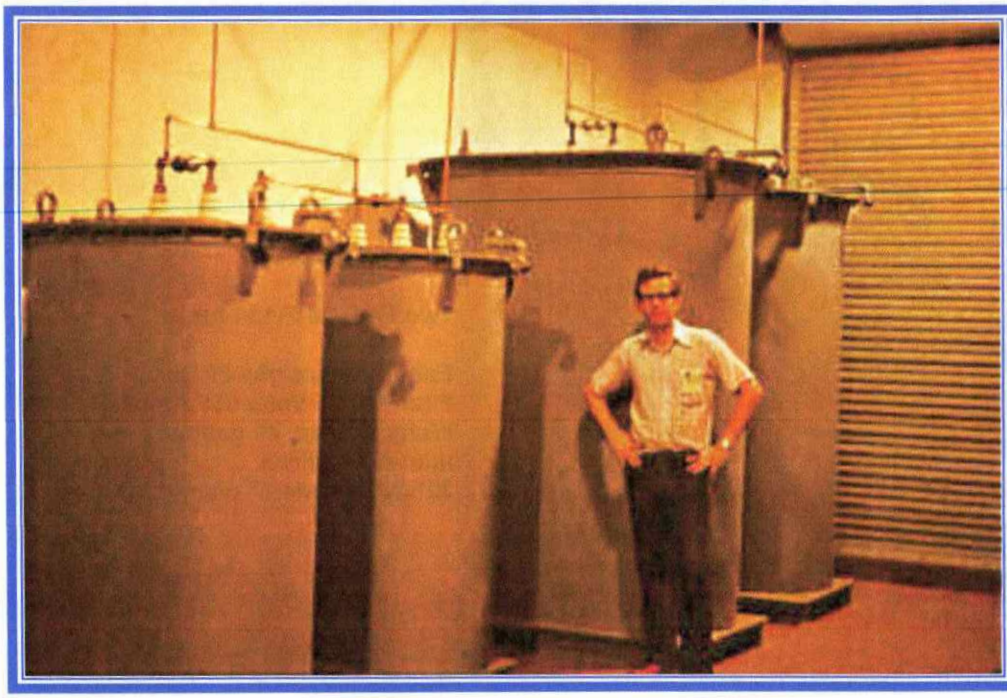
Push pull / Parallel Modulator tubes.
Three tubes on each side.

Inside the High Voltage vault DX-1.

Power supply transformers

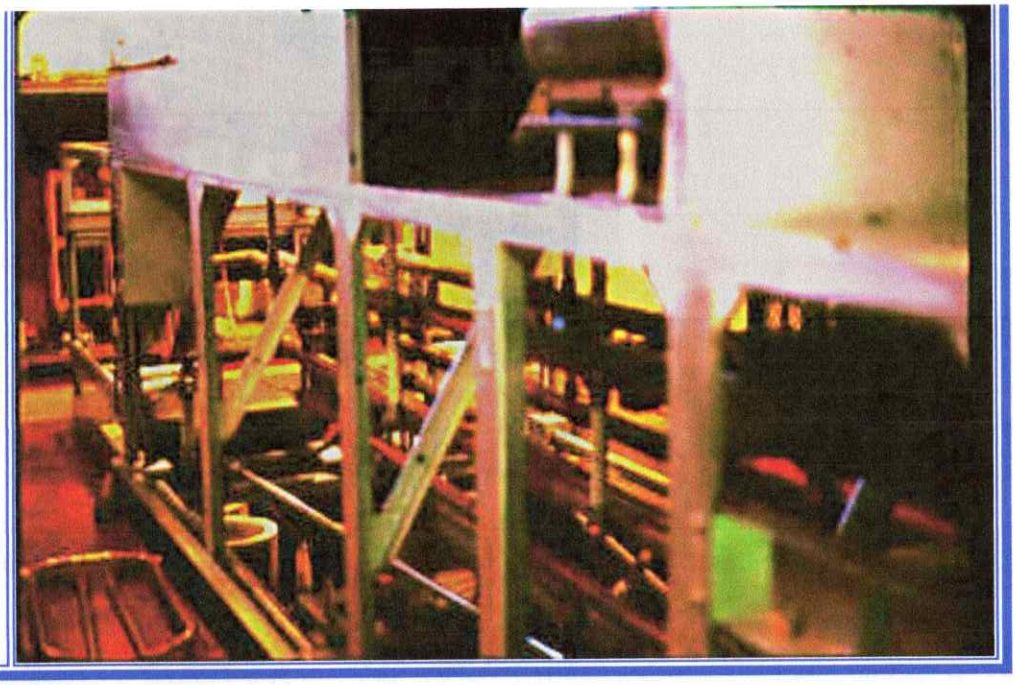
2400 Volt primary feeders

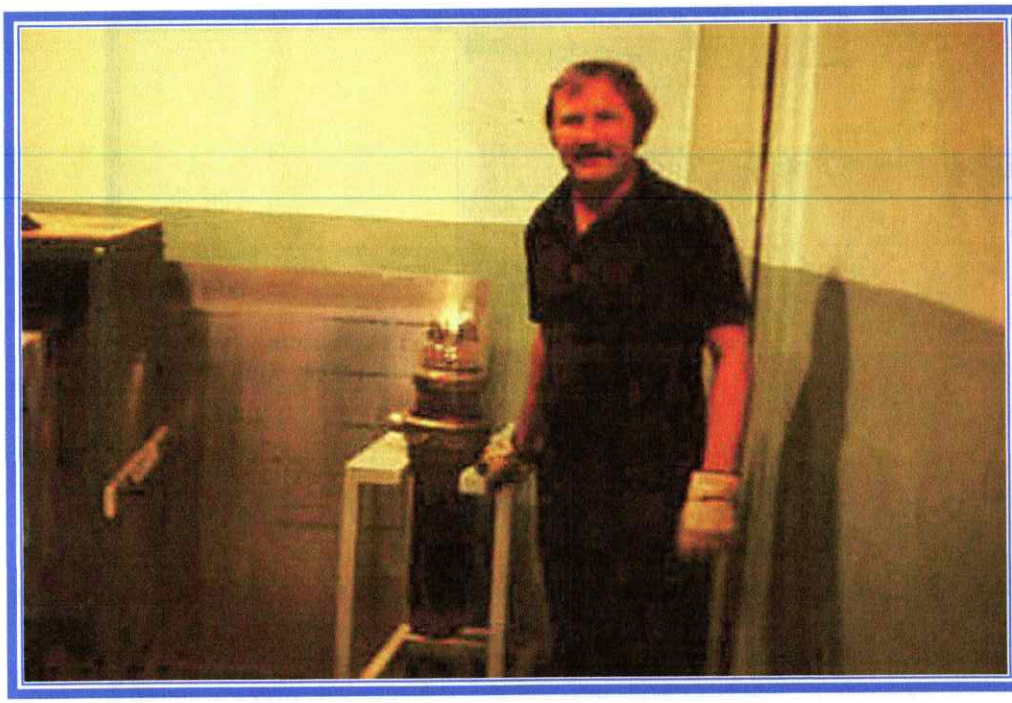




DX-1 High voltage vault
Power supply filter chokes

DX-1 final PA tank.
Grid tuning on top,
Plate tuning below,
Link coupled output to balanced 300 ohm open wire transmission lines





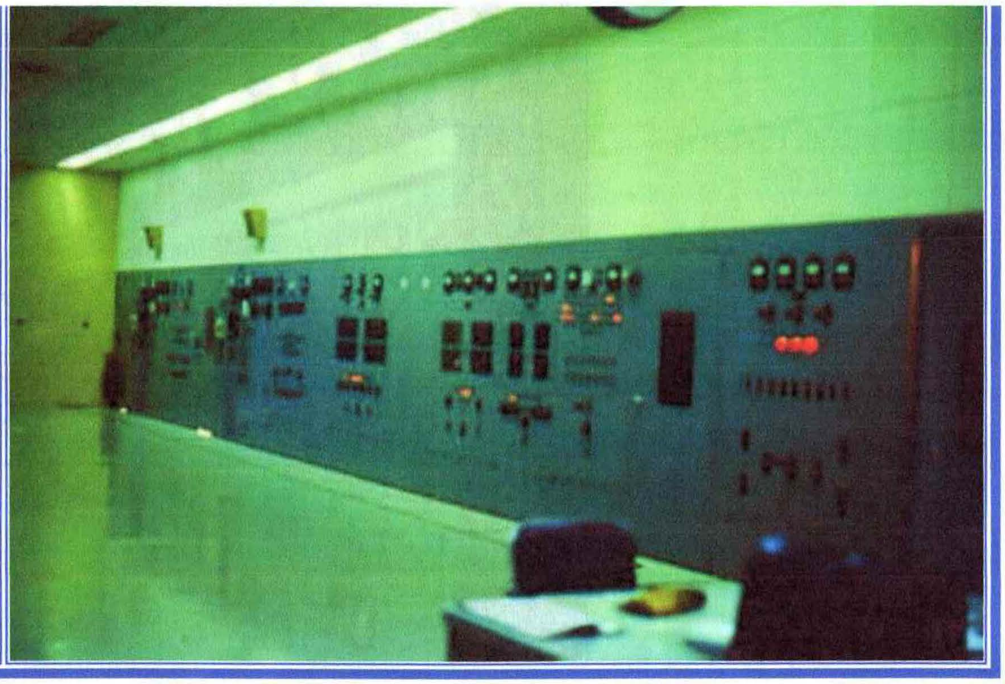
DX-1

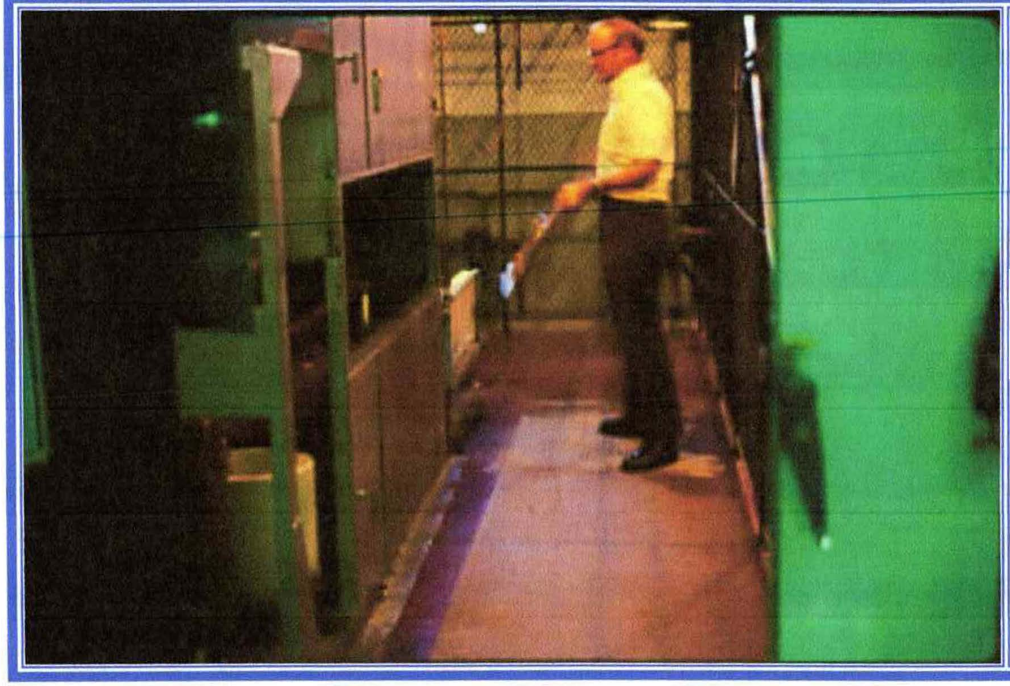
Final RF amplifier

Two Federal F-134 tubes

Each tube weighs 80 lbs.
Filament 25 Volts 650 Amps
Water cooled, 40 gallons per minute required.
39" tall, anode 6" diameter

DX-2 and DX-3
RCA/Federal 50 KW transmitters with a common modulator.



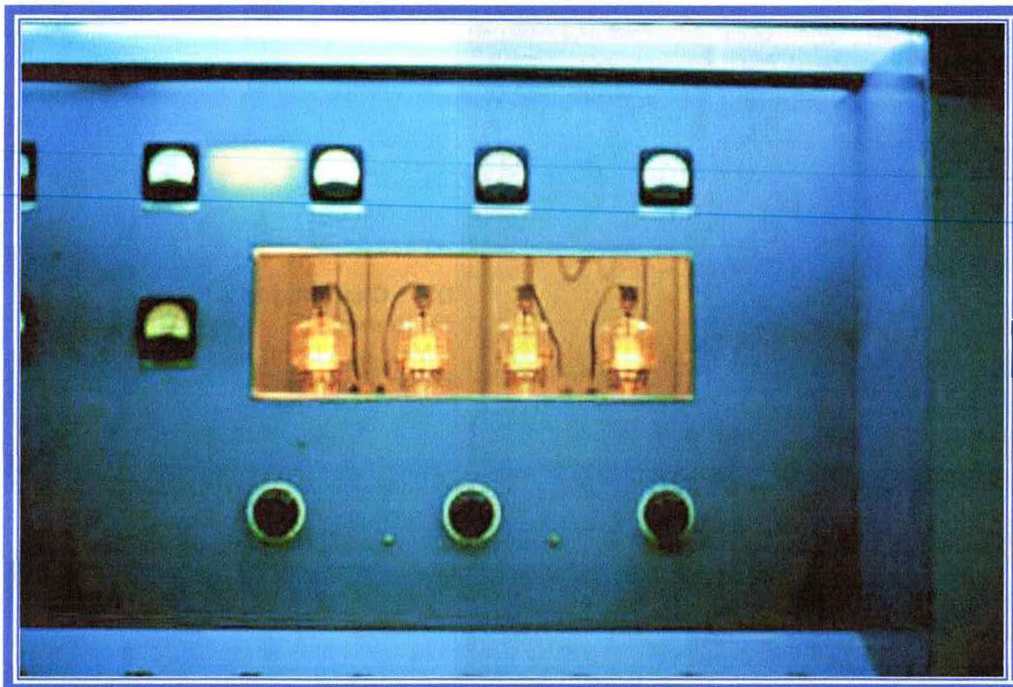


DX-1 Changing to a lower frequency
6 MHz coil being added to driver stage

DX-5 General Electric 100 KW G-100-A transmitter.
Low level RF stages nearest,
RF Power Amplifier.
Access doorway,
Modulator, Low level audio
Power supply components

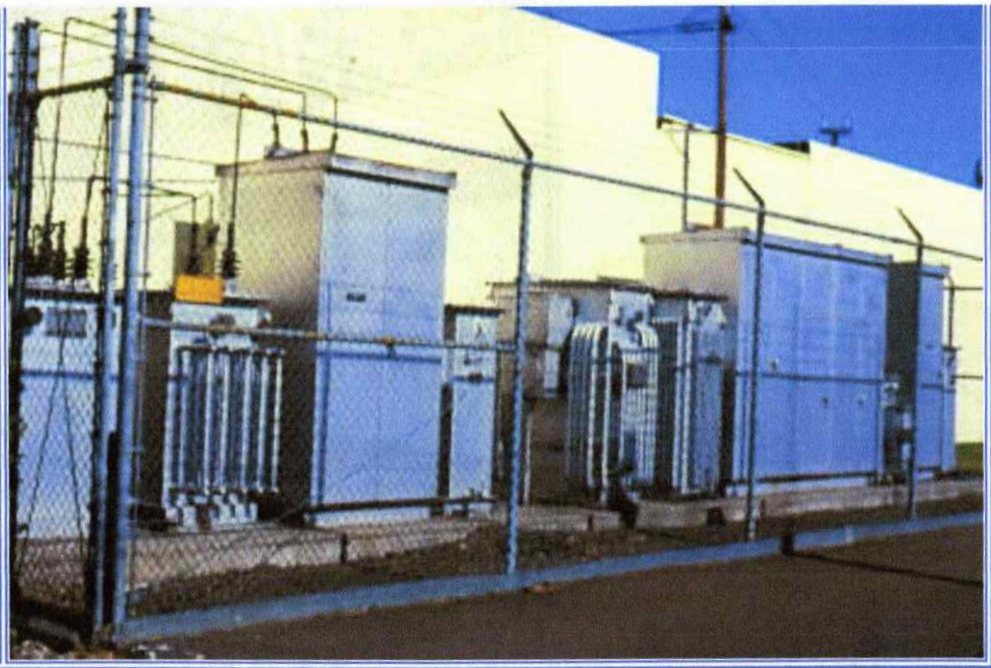
DX-4 is identical and located in the East concourse.

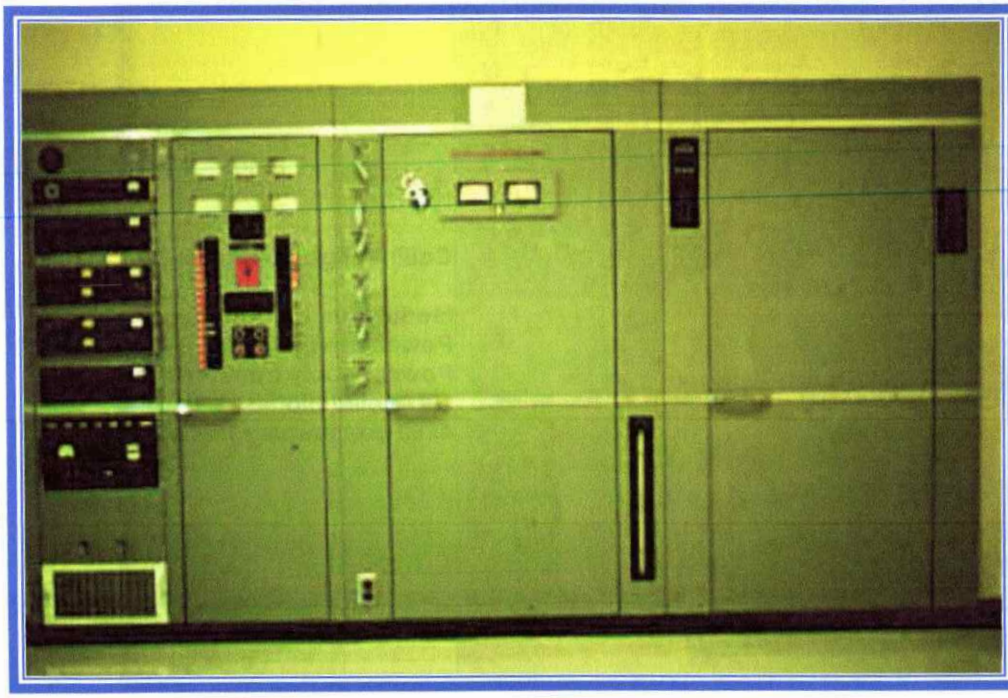
RF amplifier uses a pair of 5681 tubes driven by an 813.



DX-5 304TH cathode follower audio drivers

DX-5 High Voltage transformers and chokes.
2400 Volt primary feeders



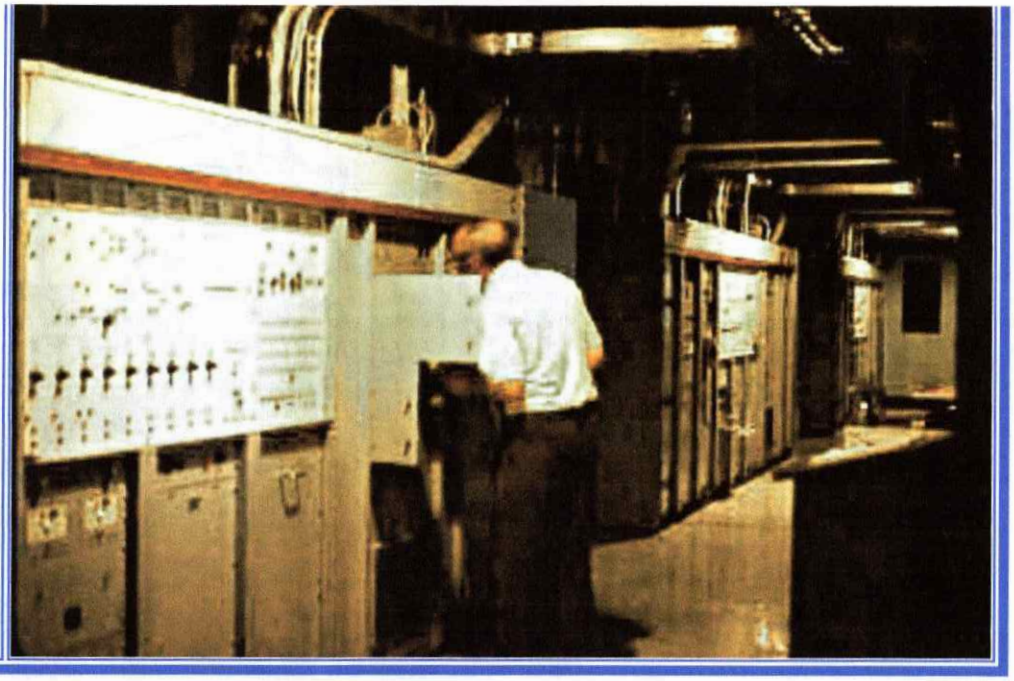


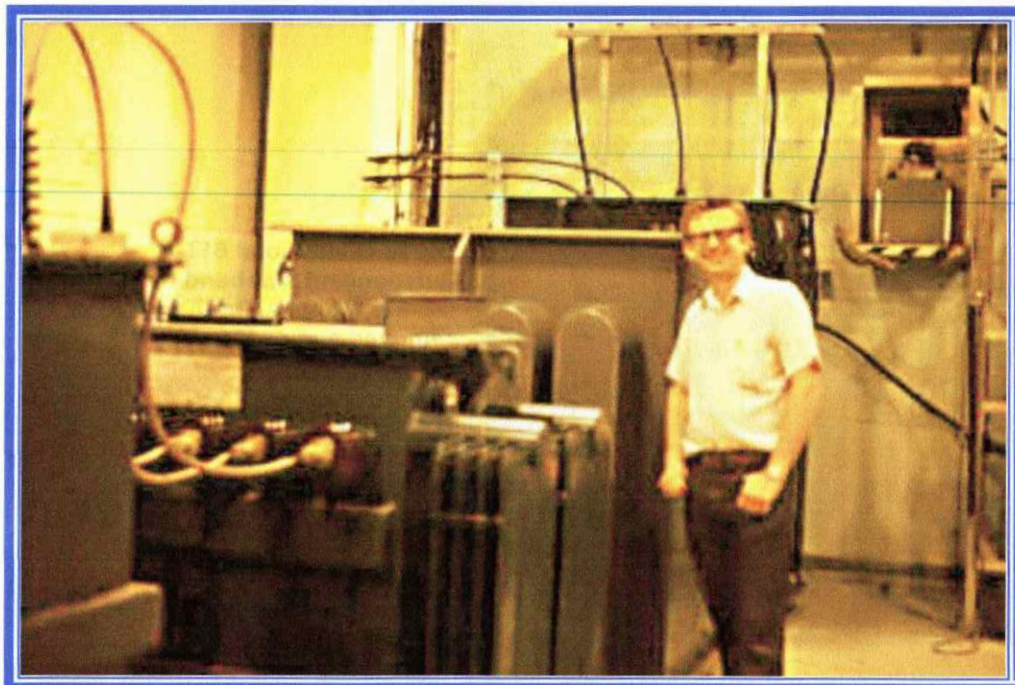
DX-10 Continental 617-A Independent sideband transmitter DX-9 is identical, both transmitters removed and sent to VOA Greenville, NC.

Final RF Amplifier tube - one 4CX35000

DX-6, 7 and 8

Collins 821A-1 250 KW transmitters.





Collins High Voltage vault

Modulation transformer
Power supply choke,
Power supply transformer
Oil cooled diodes
4160 Volt primary feeders

Collins HV vault.

Crowbar catwalk,

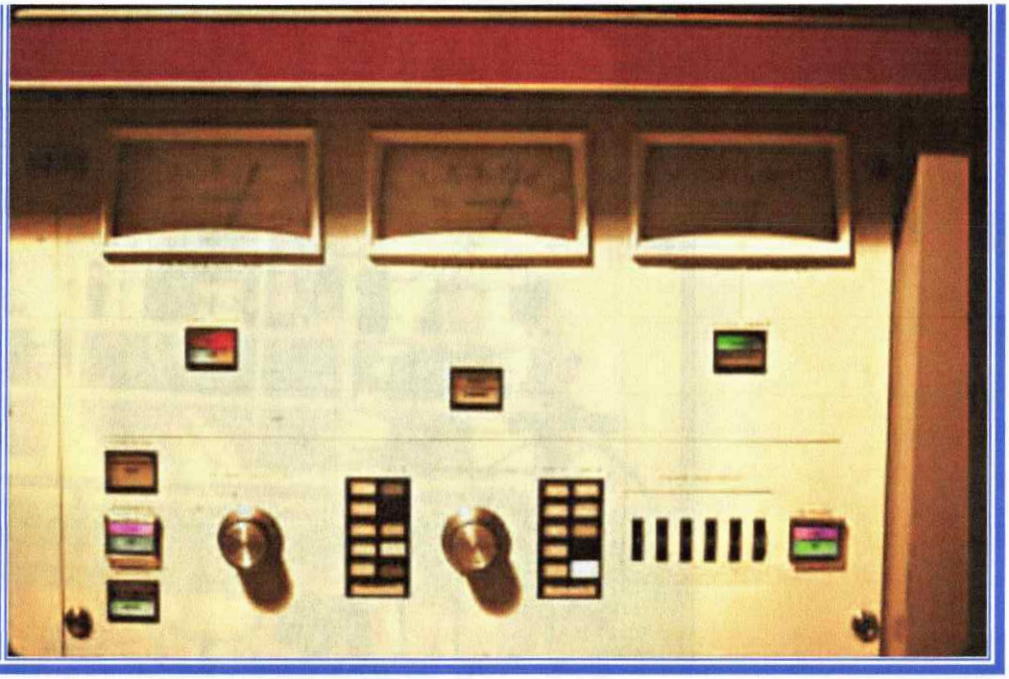
DX-6, 7, 8 crowbars featured unique triggered carbon ball gaps which reacted more rapidly to discharge the 15 kV power supply than would the more familiar electro-mechanical systems commonly in use. The higher speed was important in preventing damage to the transmitter's PA/modulator tubes and the numerous expensive water-cooled vacuum capacitors in the plate circuit, pi-line and balun

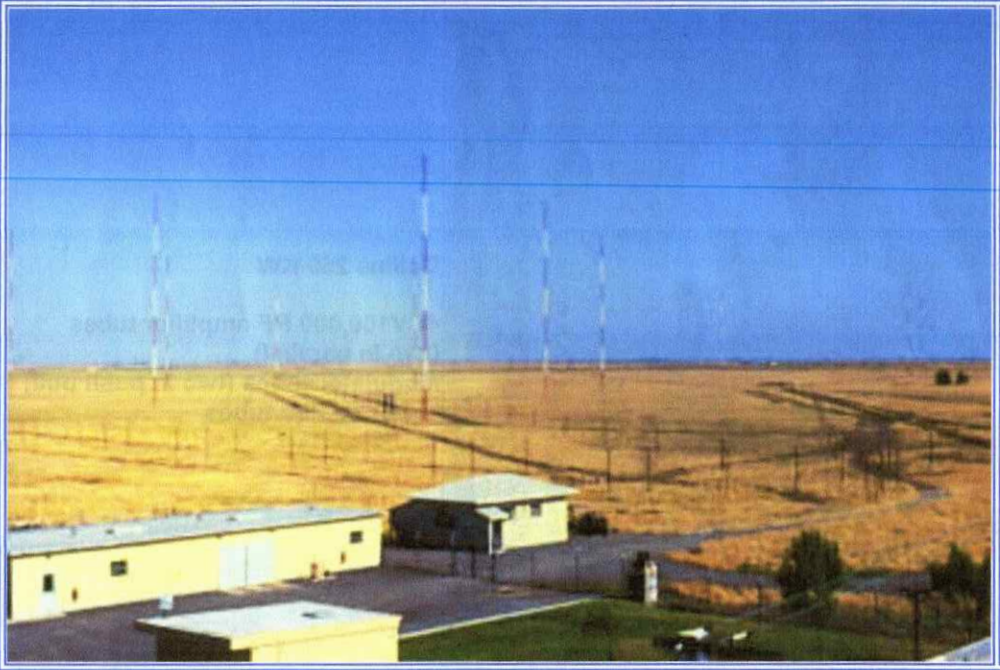
Collins 250 KW

4CV100,000 RF amplifier tubes
(two in parallel)
Modulator tubes (two in push pull)
Vapor cooled tubes

Remote Collins console.
Located in control room

15 KV 23 Amps 250 KW





Rhombic antenna towers
There are ten rhombic antennas,

The rhombics were oriented toward Northern Asia

Several were reversible in direction

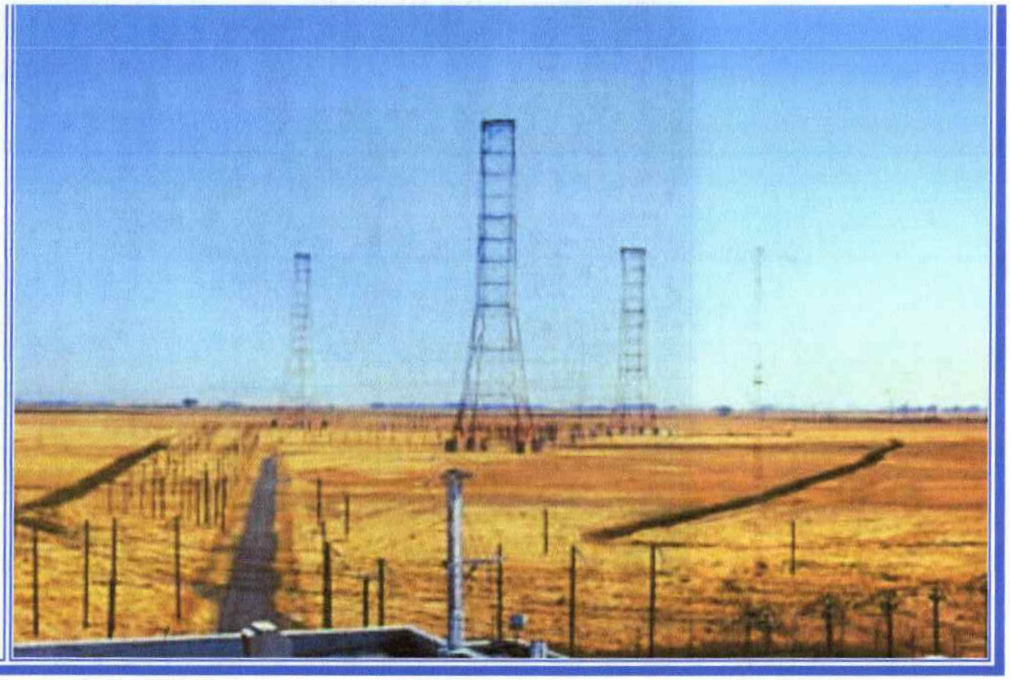
The reverse direction was used for Spanish Language Radio Marti programming to Cuba and for Spanish language programming to Central America in the 1980's

Curtain antennas

End towers 325 feet tall

Center tower 305 feet tall

700 feet between towers



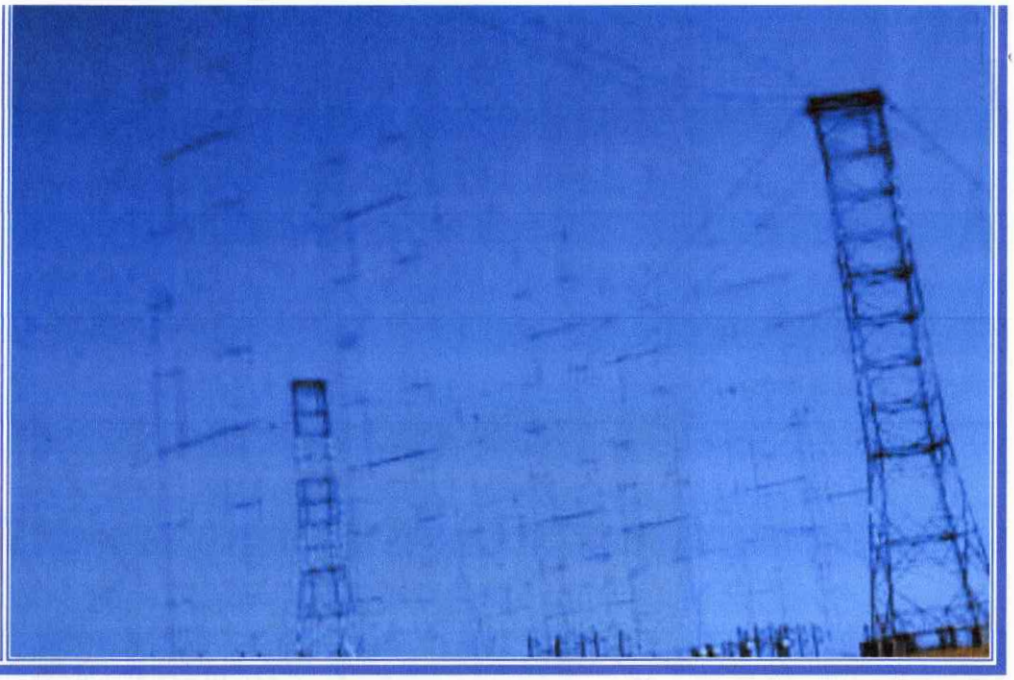
Curtain antenna elements

The Northern group of antennas were beamed toward Northern Asia

The Southern group favored Oceania and the VOA relay station in the Philippines.

The Rhombic antennas were oriented on similar azimuths

Curtain antenna elements.
Four antennas strung between each pair of towers



Antenna switchbay matrix

Pneumatic RF switch capable of Switching any antenna to any transmitter

RF switchbay.
White building houses 250 KW dummy load.

Nearest poles carry transmitter transmission lines into the switchbay, antenna transmission lines out either side

A receiver site with rhombic antennas oriented on VOA Greenville, N.C. was part of the VOA Dixon capability.

The various VOA langage services were delivered to Dixon via telephone lines and later satellite circuits from studios in Washington D.C. The receiver site was never routinely used as a source of programming however, it was maintained and the microwave link to the transmitter plant was routinely tested. The receiver site was located some 15 miles South of the transmitter facility to minimize potential interference.

Click here for aerial view of the facilities.

Google Maps Transmitter site

Google Maps Receiver site