

CONSTRUCTION OF NEW WWV BUILDINGS BEGUN

Construction is now under way on the NBS standards broadcast station WWV at Fort Collins, Colo. A contract was awarded early in May to a local builder, W. K. Livingston, for the construction of the transmitter building and administration building at the Fort Collins site. This is the last major contract affecting the move of WWV from Greenbelt, Md., to Fort Collins. According to present plans WWV will start broadcasting from its new site about December 1, 1966.

Because of the central location of Fort Collins, WWV signals from there will be received better throughout most of the continental United States than those from Greenbelt. No additional services are planned from the new location at this time.

The new transmitter building, located near the present WWVB-WWVL building, will be a T-shaped, cinder-block structure with a flat, steel girder roof. It will contain 6,880 square feet of work space, including a 4,200-square-foot transmitter and laboratory area, a 744-square-foot area for standby equipment, and a 961-square-foot machine shop and garage.

The 40×25-foot administration building will adjoin the present WWVB-WWVL transmitter building and will be a prefabricated metal structure conforming to it in appearance. This building will contain a lobby, the administrative offices for all three stations, a conference room, and facilities for displays and public briefings.

Four of the eight transmitters at the new location will be capable of radiating 10 kW of power and the other four, 2½ kW. Three of the 10-kW transmitters will operate continuously—at 5, 10, and 15 MHz—and one will be maintained as a standby for use at any of these frequencies. Three of the 2.5-kW transmitters will be operated at 2.5, 20, and 25 MHz and the fourth kept as a standby for these frequencies. The transmitter power amplifiers are of a commercial design and are being supplied by the Technical Materiel Corp. The transmitter drivers operating the power amplifiers are being made to NBS specifications.

Six of the eight antennas are half-wave, center-fed, vertically polarized, modified sleeve antennas from the Rohn Manufacturing Co., each operating at one of the six frequencies. The two standby transmitters will be connected to two identical monopole antennas, supplied by the Collins Radio Co., which can be used at any of the WWV frequencies.

Transmissions from WWV are now synchronized by means of phase-lock receivers tuned to the WWVL and WWVB transmissions from Fort Collins. Phase-lock receivers will not be needed when WWV is relocated; coaxial cables will connect it with WWVL and WWVB for continuous frequency and phase comparison.

The correct time has been established at WWV from portable electronic clocks that were set at the NBS Radio Standards Laboratory at Boulder, Colo., and carried, still running, to the Greenbelt transmitter. A similar procedure after the move will establish the correct time at all three stations simultaneously.

Most of the equipment presently in use at WWV is more than 15 years old and will be replaced with new and up-to-date equipment at Fort Collins. The new transmitters, programers, time code generators, and frequency control equipment will offer better precision than those currently in use.

Propagation time delay from Fort Collins will depend on where the receiver is located and will not differ from the time delay from Greenbelt by more than 9 msec. When the time comes for the changeover, the broadcasts on all frequencies from Greenbelt will be cut off at the instant that the transmitters at Fort Collins go on the air. Transmissions will continue on all frequencies without interruption so that no users will lose the signal.

Technical information about the services of NBS standards stations WWV, WWVH (Maui, Hawaii), WWVB, and WWVL can be obtained from NBS Miscellaneous Publication 236, Standard Frequency and Time Services of the National Bureau of Standards. The 1966 edition is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at a cost of 15 cents per copy. Each month the Standards and Calibration column in the TNB includes an item entitled U.S. Standard Frequency and Time Broadcasts that reports any changes in these services. (See p. 157 for the October 1966 announcement.)

Left: this is one of two standby antennas recently installed at the new facilities for NBS radio station WWV. The coaxial transmission line (bottom) will connect with a transmitter in the new building, under construction to the left. Right: the standby antenna, fed by a 3/8-inch coaxial transmission line, is examined by Hugh Stewart of the NBS staff. Transmitters in the new WWV building, under construction (background), will feed seven other antennas, one for each of the six transmission frequencies and another standby antenna. These antennas have been designed for ruggedness, compactness, and high efficiency.

