

WISL . . . 1 KW AM

Shamokin, Pa.

WISL DIRECTIONAL PROBLEM SOLVED WITH FOUR-TOWER ANTENNA ARRAY

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Chief Engineer

Radio Station WISL (Radio Anthracite, Inc.) which is located in Shamokin, Pa., has been serving the anthracite region of central Pennsylvania for over a year. The new 1 KW AM broadcast station was conceived in the minds of a small group of public spirited citizens with a desire to provide complete local radio service to Shamokin community which lacked primary radio service at night prior to the advent of WISL.

Antenna Array Location

Engineering studies and surveys started in 1946 resulted in the filing of an application for 1000 watts on 1480 KC, with night-time protection provided (by a four tower antenna array) for existing stations on this channel. The antenna array (see Fig. 1) had to be located southeast of Shamokin in order to serve the purpose of its design. This particular area, at first, yielded no prospect for a suitable site because of the rising brush covered slopes of Big Mountain and the man-made ravines resulting from previous coal stripping operations.

An aerial survey finally revealed a flat section, on the slope, large enough to accommodate the array. After a C.P. was granted, work began in June of 1947.

Building construction and equipment installation proceeded smoothly. However, some delay was encountered while laying radials since huge rocks just below the ground surfaces mangled the laying plow. A highway roter was finally equipped with a feed pipe. This massive piece of equipment pulled by a heavy duty "cat" planted 720 radials in four days.

Equipment tests, shaping of contours, and proof-of-performance were started in the late fall of 1947. Due to the rugged ter-

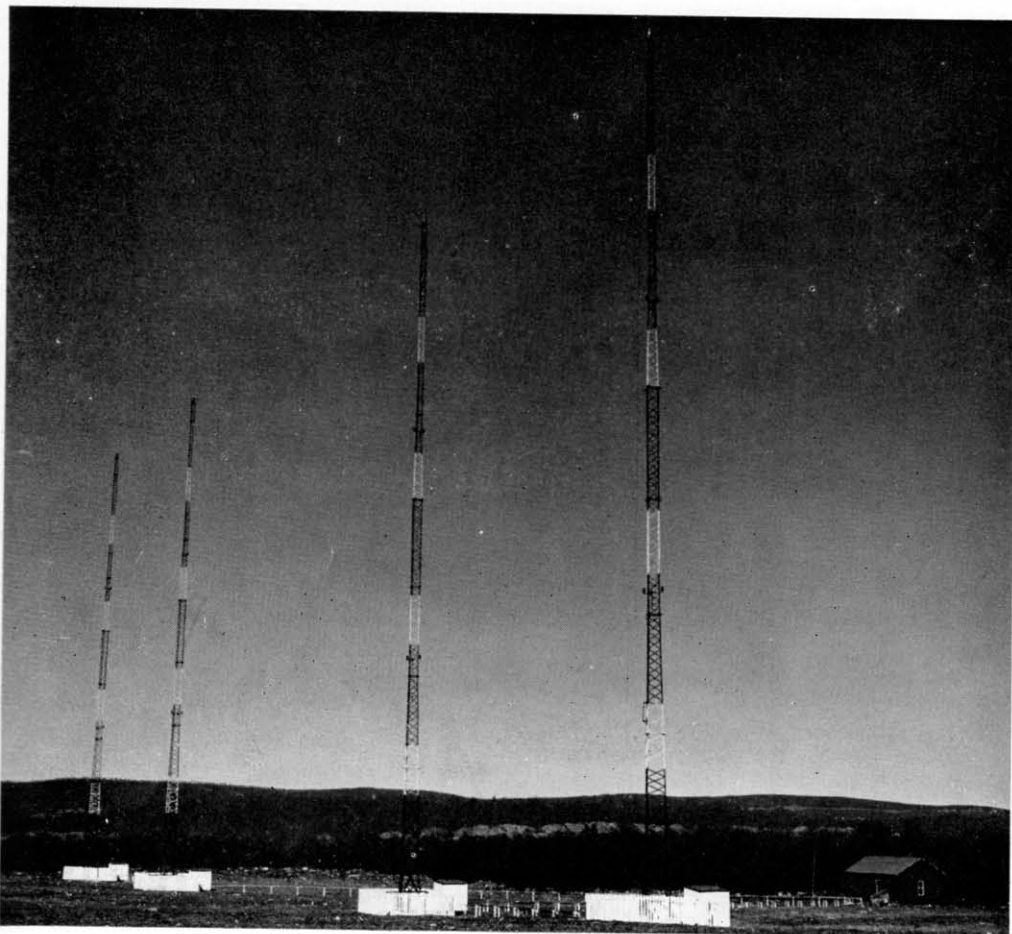


FIG. 1 (above). View of WISL's four-tower directional antenna array with lines to towers visible.



FIG. 2 (at left). Chief Engineer, B. T. Marshall (left) and General Manager, C. R. Petrie inspect an RCA test and audio rack during installation.

rain and danger of driving into stripping holes at night—the FCC granted permission to take field measurements in the daytime. Two-way radio was used to maintain contact between field cars and the transmitter.

Station Equipment

The transmitter house and studios were completely equipped with the latest RCA equipment, including the 1 KW AM transmitter (BTA-1L), 76 series consolettes, 70-D transcription turntable, two complete audio, test and monitoring rack equipments and necessary RCA studio and control room microphones.

Transmitter

The 1 KW transmitter and associated rack equipment were located as shown in Fig. 3. Transmitter design includes the RCA 250 watt transmitter (BTA-250L) which is used as the exciter for the 833-A Power Amplifiers which operate in a class "C" push-pull circuit. Plate modulation of the final amplifier is accomplished by two RCA-833A tubes, operating in class "B." The complete transmitter occupies an approximate floor area of only 14.5 square feet. The studio consolette and turntables were arranged in front of the studio window as pictured in Fig. 3, to provide a convenient arrangement for the operator.

With both studio and transmitter ready for final equipment tests, WISL was granted permission for program tests in January 1948. All tests proceeded satisfactorily and since operation started, no air time has been lost due to equipment failure.

FIG. 3 (right above). WISL transmitter room view showing RCA test, monitoring and audio racks at left and 1 KW transmitter (BTA-1L) at right.

FIG. 4 (right). View into WISL studio from control room in which 76-B5 consolette and 70-D turntables are located.

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