

# **ENGINEERING REPORT**

**Requesting a Minor Construction  
Permit Modification for FM Station**

**WCWB-FM – Coldwater, MI  
Construction Permit  
No. BMPED-20060601BCP  
Channel 211B1 (90.1 MHz)**

**July 2007**

COPYRIGHT 2007

**MUNN-REESE, INC.**  
Broadcast Engineering Consultants  
Coldwater, MI 49036

# **TABLE OF CONTENTS**

---

Discussion of Report

## **Main Studio Location**

- Exhibit 13.1 – Topographic Map of Proposed Site
- Exhibit 13.2 – Vertical Plan of Antenna System and Support Tower
- Exhibit 13.3 – Tabulation of Operating Conditions
- Exhibit 13.4 – Present and Proposed Contour Study
- Exhibit 13.5 – Proposed Directional Antenna Pattern

## **Interference Requirements**

### **Contour Overlap Requirements**

- Exhibit 16.1 – Tabulation of Allocation
- Exhibit 16.2 – Proposed WCWB vs WOCR & Waiver Request
- Exhibit 16.3a – Proposed WCWB vs WKDS
- Exhibit 16.3b – FM Over Analysis vs WKDS
- Exhibit 16.4 – Proposed WCWB vs WKAR-FM

**Spacing Requirements** (none)

**Grandfathered Short-Spaced Requirements** (none)

**Contour Protection Requirements** (none)

### **TV Channel 6 Protection Requirements**

- Exhibit 19.1 – Protection to WLNS-TV

## **RF Radiation Study Requirement**

See Discussion

(Exhibit Numbering is in response to FCC Online Form 340, Section VII)

## **DISCUSSION OF REPORT**

---

This firm was retained to prepare the required engineering report in support of a minor change to the construction permit facilities of Non-Commercial FM station WCWB (FM), Coldwater, MI, File No. BMPED-20060601BCP, which is authorized to operate on Channel 211B1, 90.1 MHz. Currently WCWB is authorized to operate with 6.0 kW vertical and 0.001 kW horizontal at 93 meters HAAT utilizing a non-directional antenna with elliptical polarization. WCWB proposes to change transmitter location, increase power to 25.0 kW vertical and 0.001 kW horizontal at 83 meters employing a directional antenna.

The proposed operation will not produce prohibited contour overlap with any other authorized or protected facility—either domestic or Canadian with the exception of one station. WCWB proposes to receive overlap from second adjacent channel station WOCR, Olivet, MI. No interference will be given to WOCR from WCWB. The proposed WCWB 60 dBu protected contour will totally encompass the 100 dBu interference contour of WOCR. The population within the proposed WCWB 60 dBu contour will increase from 83,488 persons to 197,369 persons. The population within the 100 dBu interference contour of WOCR is 1,530 persons or less than 0.8% of the proposed WCWB 60 dBu contour, and is therefore considered to be *de minimus*. The Commission has stated that it is inclined to grant waivers of second and third adjacent channel overlap where the benefits of increased noncommercial educational service so heavily outweighs the potential for interference. Therefore, this instant application requests a waiver of Section 73.509 of the Rules. A tabulation of the proposed allocation is found in **Exhibit 16.1**. Besides WOCR, there are two other stations close enough to the transmitter site to require further study. An FMCommander™ map of the relevant protected and interference contours towards WKDS and WKAR has been supplied as **Exhibit 16.3a, Exhibit 16.3b and Exhibit 16.4**. It is believed there is sufficient clearance to preclude the need for further study with respect to the other protected stations shown in the allocation study. Tabulations for each contour employed will be supplied to the FCC upon request.

The proposed service contour has been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The present and proposed service contours are shown in **Exhibit 13.4**. The proposed contour overlaps the present contour as required for a minor change application. This exhibit shows the overall service that is provided by the 1.0 mV/m contour of the proposed facility. The tabulation of the distances to the proposed service contour shown in this discussion is based on the use of the standard eight cardinal bearings, which were also used for the computation of the HAAT. However, the plotted contours shown in **Exhibit 13.4** are based on the use of a full 360 terrain radials and the USGS 03 Second Terrain Database.

The antenna will be mounted on a proposed 91.4 meter tower. Filing with the Federal Aviation Administration (FAA) will be done concurrently with this application.

## **DISCUSSION OF REPORT** (continued)

A vertical antenna plan depicting the placement of the antenna on the tower has been included in ***Exhibit 13.2***. Information concerning the proposed directional pattern has been included as ***Exhibit 13.5***.

The remainder of the information in this report and exhibit numbering are responsive to the Rules of the Commission, and provide the data for FCC Form 340.

The proposal complies with the FCC Worksheet #7 for human exposure to RF radiation. A copy of the Worksheet will be supplied if requested.

**DISTANCES TO CONTOURS:** The table below shows the distances to the 1.0 mV/m contour from the proposed facility using an ERP of 25 kW at an HAAT of 83 meters. These distances have been calculated based on the FCC F(50-50) curves.

Munn-Reese, Inc.  
N. Lat. = 421206.0 W. Lng. = 850335.0  
HAAT and Distance to Contour - FCC Method - USGS 03 SEC

WCWB-FM

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	279.7	89.7	25.0000	13.98	1.000	37.28
045	284.9	84.5	25.0000	13.98	1.000	36.29
090	293.7	75.7	25.0000	13.98	1.000	34.51
135	296.3	73.1	25.0000	13.98	1.000	33.96
180	289.2	80.2	25.0000	13.98	1.000	35.43
225	281.0	88.4	24.4851	13.89	0.990	36.87
270	286.6	82.8	3.8000	5.80	0.390	23.34
315	279.4	90.0	12.1771	10.86	0.698	31.66

Ave El= 286.35 M HAAT= 83.05 M AMSL= 369.4