

# **ENGINEERING REPORT**

## **MINOR CONSTRUCTION PERMIT APPLICATION**

For the NCE-FM Station

**WGCP(FM) – Cadillac, MI  
CH220A/C3 – 91.9 MHz  
Facility ID No. 174643**

License File Number  
**BLED-20091201ASN**

February, 2015

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## **Main Studio Location**

### **Community Coverage**

- Exhibit 16.1 - Copy of Existing Antenna Structure Registration
- Exhibit 16.2 - Vertical Plan of Antenna System and Support Structure
- Exhibit 16.3 - Tabulation of Operating Conditions
- Exhibit 16.4 - Present vs. Proposed Contour Study

## **Interference Requirements**

### **Contour Overlap Requirements**

- Exhibit 18.1 - Tabulation of Non-Commercial Allocation
- Exhibit 18.2 - Contour Protection Toward WHDI.L – Sister Bay, WI

### **Spacing Requirements**

- Exhibit 20.1 - Commercial Spacings Study

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

### **Contour Protection Requirements**

- Exhibit 20.2 - §73.215 Contour Protection Toward WTWS.L – Houghton Lake, MI
- Exhibit 20.3 - §73.215 Contour Protection Toward WBNZ.L – Frankfort, MI

## **TV Channel 6 Protection Requirements** (none)

## **RF Radiation Study Requirement**

- Exhibit 24.1 - RF Compliance Study

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

# Discussion of Report

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This firm was retained to prepare the required engineering report in support of this minor Construction Permit Application for NCE-FM station WGCP(FM) – Cadillac, MI, License Number BLED-20091201ASN. WGCP(FM) is licensed to operate on CH220A (91.9 MHz) with Class A operating parameters of 2.1 kW at a COR of 449 meters AMSL employing a directional antenna.

*WGCP(FM) also holds Construction Permit BMPED-20120622ADQ which is in the process of being voluntarily surrendered.* This Construction Permit application requests Class C3 non-directional operating parameters of 2.65 kW at a COR of 633 meters AMSL from a new site location. The requested parameters are nearly identical to those of former Construction Permit BMPED-20120622ADQ. The station will continue to serve the city of Cadillac, MI.

The proposed site for the Class C3 operation meets all the §73.509 contour protection requirements towards other domestic stations in the allocation. A tabulation of the proposed protections to each of the other relevant stations is found in **Exhibit 18.1**. There is one (1) other facility, WHDI.L – Sister Bay, WI, CH220C2 deemed close enough to require further study. An FMCommander™ map of the relevant protected and interference contour towards this facility has been supplied in **Exhibit 18.2**. It is believed there is sufficient clearance to preclude the need for further §73.509 studies with respect to the other domestic protected stations shown in the allocation study. Tabulations for additional contours employed will be supplied upon request.

As the proposed facility is located on Channel 220C3, a commercial spacings study has been prepared and attached in **Exhibit 20.1**. The proposed facility is fully spaced to all commercial facilities with the exception of WTWS.L – Houghton Lake, MI, CH221A; and WBNZ.L – Frankfort, MI, CH222C2. Processing under §73.215 is requested toward WTWS.L and WBNZ.L as noted in **Exhibit(s) 20.2** and **20.3**. As both WTWS.L and WBNZ.L are presently licensed under the provisions of §73.215, protection has been afforded each facility only at the present operating parameters.

The transmitter site is located within 320 km of the common border between the United States and Canada. Full protection will be afforded all Canadian facilities over Canadian soil as noted in **Exhibit 18.1** and **Exhibit 20.1**. No Canadian facilities are affected by this proposal as noted in the allocation showings.

The Transmitter site is not located within the affected radius of any Channel 6 television facility; therefore no further TV-6 protection studies are required.

The proposed service contours have been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The plotted service contour is found as **Exhibit 16.4** of this report. This exhibit shows the overall service that is provided by the 1.0 mV/m contour of the facility. The tabulation of the distances to the respective contours 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 16.4** are based on the use of a full 360 terrain radials. The applicant would like to note the use of the NED 03 second terrain database for all allocation, contour and HAAT calculations contained here-in.

## Discussion of Report (continued)

The proposed WGCP(FM) 6-bay antenna will be located directly below the WIAA(FM) – Interlochen, MI, CH204C, 10-Bay antenna presently mounted on the existing tower bearing Antenna Structure Registration Number 1031841. A copy of the existing ASR has been included in **Exhibit 16.1**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 16.2**.

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

**RADIATION PROTECTION:** The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency radiation. This report section is in response to that provision of the Rules. The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1307(b)(3) of the Commission's rules concerning RF contributors of less than 5%. **Exhibit 24.1** provides the details of the study that was made to demonstrate compliance. The facility is or will be properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates if required. Any other means as may be required to protect employees and the general public will be employed.

***In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.***

**DISTANCES TO CONTOURS:** The table below shows the distances to the 1.0 mV/m contour from the proposed facility using an ERP of 2.65 kW at an HAAT of 285 meters. These distances have been calculated based on the FCC F(50-50) curves.

Dis

N. Lat. = 441633.0    W. Lng. = 854248.0						
HAAT and Distance to Contour,						
FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	351.0	282.0	2.6500	4.23	1.000	37.77
045	396.9	236.1	2.6500	4.23	1.000	34.97
090	419.7	213.3	2.6500	4.23	1.000	33.30
135	413.1	219.9	2.6500	4.23	1.000	33.82
180	343.0	290.0	2.6500	4.23	1.000	38.23
225	294.9	338.1	2.6500	4.23	1.000	40.88
270	276.0	357.0	2.6500	4.23	1.000	41.89
315	288.1	344.9	2.6500	4.23	1.000	41.25
Ave El= 347.84 M    HAAT= 285.16 M    AMSL= 633						