

# **ENGINEERING REPORT**

## **MINOR CONSTRUCTION PERMIT APPLICATION**

For the FM Facilities of  
**WZNL(FM) – Norway, MI**  
**CH232C3 – 94.3 MHz**  
**Facility ID No. 74549**

License No.  
**BLH-19950605KA**

June, 2013

COPYRIGHT 2013

# Table of Contents

---

Discussion of Report

## **Allotment Requirement**

Exhibit 27.1 - Copy of Antenna Structure Registration

Exhibit 27.2 - Vertical Plan of Antenna System

Exhibit 27.3 - Tabulation of Operating Conditions

Exhibit 27.4 - Present vs. Proposed Service Contour Study

**Community Coverage Requirement** (See Discussion)

**Main Studio Location Requirement** (See Discussion)

## **Interference Requirements**

Separation Requirements

Exhibit 30.1 - Tabulation of Commercial Spacings

Short-Spacing §73.215 Requirements

Exhibit 34.1 - §73.215 Contour Protection Studies Toward WRJO(FM) – Eagle, River, WI

Exhibit 34.2 - §73.215 Contour Protection Studies Toward WUPK(FM) – Marquette, MI

## **RF Radiation Study Requirement**

Exhibit 35.1 - RF Radiation Study

(Exhibit Numbering is in response to FCC Online Form 301, Section III-B)

# **DISCUSSION OF REPORT**

---

This firm was retained to prepare the required engineering report in support of this Minor Construction Permit Application for WZNL(FM) – Norway, MI (Facility ID No. 74549). Presently WZNL(FM) operates under License BLH-19950605KA with 2.4 kW ERP (H&V) at 543 meters AMSL. A new operational site is requested with Class C3 parameters of 2.55 kW ERP (H&V) at 535 meters AMSL. The existing 2-Bay ERI antenna will be reused at the new tower location. The facility will continue to serve the currently authorized community of Norway, MI.

The proposed site for the Class C3 operation meets all domestic and international spacing requirements of 47 C.F.R. §73.207 toward other stations in the allocation with the exception of two (2) domestic facilities. A tabulation of the existing and required spacing toward each of the other relevant stations is found in **Exhibit 30.1**.

Short-Spacing processing under §73.215 is requested toward WRJO(FM) - Eagle River, WI and WUPK(FM) – Marquette, MI. As WRJO(FM) presently remains fully spaced, full protection has been afforded WRJO(FM) at maximum Class C2 facilities (50 kW at 150 meters HAAT) as noted in **Exhibit(s) 34.1**. As WUPK(FM) is presently licensed as a short-spaced, §73.215 station, full protection has been afforded WUPK(FM) at its present operational parameters as noted in **Exhibit(s) 34.2**.

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 contours are found as **Exhibit 27.4** of this report. This exhibit shows the 3.16 mV/m contour which serves the community of license, and the overall service provided by the 1.0 mV/m contour of the facility. The plotted contours shown in **Exhibit 27.4**, are based on the use of a full 360 terrain radials. The applicant would like to note the use of the NED 03 SEC terrain database for all allocation, contour and HAAT calculations contained here-in.

As stated before, the antenna will be mounted on an existing tower presently bearing Antenna Structure Registration number 1060954. A copy of the existing ASR has been included in **Exhibit 27.1**. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 27.2**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified

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 Online Form 301, Section III-B.

**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).

## DISCUSSION OF REPORT (continued)

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 35.1** provides the details of the study that was made to demonstrate compliance. The facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. 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 3.16 mV/m and 1.0 mV/m contours from the proposed facility using an ERP of 2.55 kW at an HAAT of 191 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 454915.0    W. Lng. = 880230.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC							
Azi.	AV EL	HAAT	ERP kW	dBk	Field	70-F5	60-F5
000	369.1	165.9	2.5500	4.07	1.000	16.97	29.16
045	340.5	194.5	2.5500	4.07	1.000	18.38	31.45
090	322.6	212.4	2.5500	4.07	1.000	19.18	32.93
135	303.7	231.3	2.5500	4.07	1.000	20.00	34.35
180	329.7	205.3	2.5500	4.07	1.000	18.86	32.35
225	364.8	170.2	2.5500	4.07	1.000	17.21	29.51
270	356.3	178.7	2.5500	4.07	1.000	17.65	30.20
315	363.2	171.8	2.5500	4.07	1.000	17.30	29.65
Ave El= 343.74 M    HAAT= 191.26 M    AMSL= 535							