

# **ENGINEERING REPORT**

## **FM Translator Minor Construction Permit Application**

for

**W214BH – Mount Pleasant, MI**

Lic No. BLFT-20040217ABW

September, 2009

COPYRIGHT 2009

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

# **TABLE OF CONTENTS**

---

Discussion of Report

**FM Booster/Fill-in Translator Requirements** (See Discussion)

**Interference Requirements**

Exhibit 12.1 - Copy of Existing Antenna Structure Registration

Exhibit 12.2 - Vertical Plan of Antenna System and Support Tower

Exhibit 12.3 - Present vs Proposed Service Contour Study

Exhibit 12.4 - Proposed vs Primary Station Service Contour Study

**Contour Overlap Requirements**

Exhibit 12.5 - Tabulation of Proposed Allocation

Exhibit 12.6 - Directional Antenna Pattern Study

**TV Channel 6 Protection Requirements**

Exhibit 12.7 - TV6 Letter of Concurrence

**Unattended Operation Requirements** (See Discussion)

**Multiple Translator Requirements** (See Discussion)

**RF Radiation Study Requirement**

Exhibit 16.1 - RF Compliance Study

(Exhibit numbering is in response to FCC Online Form 349, Section III-A)

## **Discussion**

---

This firm has been retained to prepare the required engineering report in support of a minor construction permit application for FM Translator W214BH, Mount Pleasant, MI, License No. BLFT-20040217ABW. W214BH presently operates on 90.7 MHz with 100 watts of non-directional power with an antenna COR of 244 meters AMSL. A site change and height increase on the same channel is requested. Operation on CH214D with 100 watts ERP at 380 meters AMSL is requested utilizing a new directional antenna pattern. The Translator will rebroadcast new primary station WMHW-FM, Mount Pleasant, MI (Facility ID No. 9910) as a Fill-In Translator.

The existing tower bears Antenna Structure Registration Number 1002165. A copy of the existing ASR has been included in **Exhibit 12.1**. A copy of the vertical antenna system has been included in **Exhibit 12.2**. It has been determined the translator may be used in the area without interference to any existing FM broadcast station or translator operation. Allocation details are found in **Exhibit 12.5**. It is believed sufficient clearance exists precluding the need for additional contour protection showings. The applicant would like to note the use of the NGDC 30 second terrain database for all HAAT, allocation and contour showings.

The Translator site lies inside of the primary contour of WMHW-FM.L and WMHW-FM.C, and the 1 mV/m (60 dBu) contour of the proposed Translator is contained wholly within the WMHW-FM.L or WMHW-FM.C station primary contour. A map of the proposed service area in relation to the primary station service contour has been included in **Exhibit 12.4**. The applicant would like to note the proposed translator will assume the WMHW-FM.L feedline and tower aperture space on ASR Tower 1002165 once WMHW-FM.C is constructed and licensed.

Regarding protection of international concerns, the present facility is and will remain within 320 km from the common border between the United States and Canada. However full protection will be afforded all Canadian concerns as the worst case proposed 34 dBu f(50:10) interference contour falls entirely over domestic soil. Documentation of the 34 dBu f(50:10) contour will be supplied upon request.

The translator is not located within the affected radius of any TV6 facility however a letter of concurrence from former analog TV-6 station WLNS(TV), Lansing, MI has been included as **Exhibit 12.7**.

The proposed operating parameters have been changed from the licensed values, however the proposed service contour serves a portion of the present service area as seen in **Exhibit 12.3**.

**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 (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 16.1** 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 following tabulation of the distances to the proposed service contours results from calculations performed in accordance with §73.313(d) and §73.333 Figure 1.

N. Lat. = 433433.0    W. Lng. = 844629.0						
HAAT and Distance to Contour,						
FCC, FM 2-10 Mi, 51 pts Method - NGDC 30 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	234.6	145.4	0.0941	-10.26	0.970	12.18
030	224.0	156.0	0.0656	-11.83	0.810	11.60
060	219.0	161.0	0.0281	-15.51	0.530	9.60
090	217.5	162.5	0.0084	-20.75	0.290	7.08
120	221.8	158.2	0.0048	-23.15	0.220	6.07
150	235.3	144.7	0.0053	-22.77	0.230	5.94
180	245.8	134.2	0.0053	-22.77	0.230	5.73
210	256.4	123.6	0.0048	-23.15	0.220	5.39
240	270.4	109.6	0.0130	-18.87	0.360	6.53
270	257.1	122.9	0.0397	-14.01	0.630	9.07
300	254.1	125.9	0.0774	-11.11	0.880	10.80
330	251.7	128.3	0.0980	-10.09	0.990	11.53
Ave El= 240.64 M    HAAT= 139.36 M    AMSL= 380						