

# **T Z SAWYER TECHNICAL CONSULTANTS**

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**NCE FM FACILITY - MINOR CHANGE**  
**APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT**  
**FM CHANNEL 220A 91.9 MHZ**  
**0.220 KW MAX DA ERP 84.8 M HAAT**  
**DIRECTIONAL ANTENNA**  
**MONTICELLO, INDIANA**  
**FACILITY ID NUMBER: 767053**

## **ENGINEERING NARRATIVE**

### **Executive Summary:**

The applicant proposes to modify its existing construction permit to increase effective radiated power (ERP) and make slight changes to its directional antenna pattern. No other changes are proposed.

The proposal will operate on FM Channel 220A with a maximum effective radiated power (ERP) of 0.220 kilowatts (kW) and an antenna height of 84.8 meters (m) above average terrain (HAAT). The facility will employ a simple standard 2-bay directional antenna system with circular polarization (H & V), and 1.0 wavelength spacing between radiating elements (bays).

47 CFR 73.215 processing is requested to adjacent channel station WROI, Rochester, Indiana, channel 221A, facility id number: 3605.

### **FCC Tower Registration (ASR) - FAA Notification:**

The proposed antenna mounting structure is a self-supporting tower with an overall height of 96.0 meters above the ground. The supporting tower structure has been registered with the FCC and issued antenna structure registration (ASR) number: 1004163. No change, as previously approved.

### **Site Map:**

A large-scale topographic map is not included in this modification of construction permit application, as there is no change in site location from that previously approved.

### **Antenna Mounting on Supporting Structure (No change):**

The center of radiation of the proposed antenna is 72.2 meters above ground level. The ground elevation at the site is 216.1 meters. The antenna center of radiation height above mean sea level is 289.3 meters, with a computed height above average terrain of 84.8 meters. No changes, elevations remain as previously approved.

### **Directional Antenna Parameters (Figure 1):**

A directional antenna system is proposed, a tabulation of the relative field pattern and graphical plot of the proposed directional pattern envelope is included. The pattern meets the 2dB per 10-degrees of azimuth span criteria and the maximum suppression requirements of the Commission's rules. The applicant will comply with all sections of the Commission's rules concerning the construction, mounting,

certification, and licensing of the directional antenna.

**Proposed Service Area (Figure 2):**

The predicted f(50,50) FCC 60 dBu principle service contour (for NCE facilities) completely encompassed the community of Monticello, Indiana (the proposed community of license), as shown in Figure 3.

The 60 dBu f(50,50) present and proposed service contours from this proposal are shown in Figure 3. The underlying construction permit was NOT awarded based on comparative NCE service comparisons (points) nor is it subjected to a “holding period.” The application is NOT restricted to changes in its service area or population.

Applicant certifies that this application does not propose a modification to an authorization that was awarded on the basis of a preference for fair distribution of service pursuant to 47 U.S.C. Section 307(b).

Applicant certifies that this application does not propose a modification to an authorized station that received a credit for superior technical parameters under the point system selection method in 47 C.F.R. Section 73.7003.

The coverage contours were calculated in accordance with the provisions of 47 C.F.R. §73.313. The average terrain elevations from 3 to 16 kilometers from the proposed site were obtained from the N.G.D.C. 30-second terrain database. The standard eight radials evenly spaced at 45-degree intervals were used for determining the average terrain elevations and the distance to the service contours.

**Allocation Considerations - FM Channel Study Contour to Contour (Figure 3):**

An allocation study using the contour to contour method shows that no prohibitive contour overlap (or Intermediate Frequency distance spacing violation) will occur to or from this proposal. Figure 3 contains tabulations (the channel study) and associated map to demonstrate compliance with the Commission rules. No prohibitive overlap is predicted to occur.

**Proposed §73.215 Operation to WROI Ch 221A:**

The proposal meets/exceeds the minimum distance requirements of §73.215 to the 1<sup>st</sup> adjacent channel commercial operation on channel 221A at Rochester, Indiana.

WROI, Rochester, Indiana, is an existing authorized §73.215 short-spaced facility. The distance between the two facilities is 52.35 kilometers. The minimum acceptable distance as listed in §73.215(e) between these two Class A station pairs is 49 kilometers. No prohibitive contour overlap occurs.

**TV Channel 6 protection requirements:**

There are no known TV 6 facilities that require additional study or protection from this proposal.

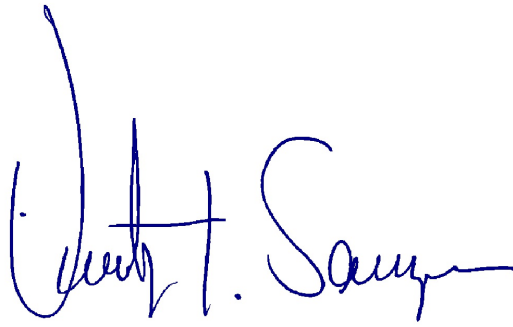
**Environmental Evaluation Statement:**

The environmental evaluation statement concerning this proposal has been included in this application and can be found as a separate file upload within the application. A grant of this proposal would NOT be an action that would have a significant environmental effect, as demonstrated in the environmental evaluation statement.

**Certification:**

The undersigned hereby certifies that this technical/engineering narrative statement and associated exhibits, tabulations, and figures were prepared by him or under his direction and are true and correct to the best of his knowledge and belief.

January 22, 2024



Timothy Z. Sawyer, Consulting Engineer

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FIGURE 1

MONTICELLO, IN PROPOSED ANTENNA  
PATTERN AND TABULATION

01-22-2024

Azi	Relative Field Value
000	1.000
010	1.000
020	1.000
030	1.000
040	0.794
050	0.631
060	0.501
070	0.398
080	0.316
090	0.251
100	0.200
110	0.178
120	0.178
130	0.178
140	0.200
150	0.200
160	0.252
170	0.300
180	0.325
190	0.355
200	0.355
210	0.398
220	0.500
230	0.540
240	0.650
250	0.794
260	1.000
270	1.000
280	1.000
290	1.000
300	1.000
310	1.000
320	1.000
330	1.000
340	1.000
350	1.000

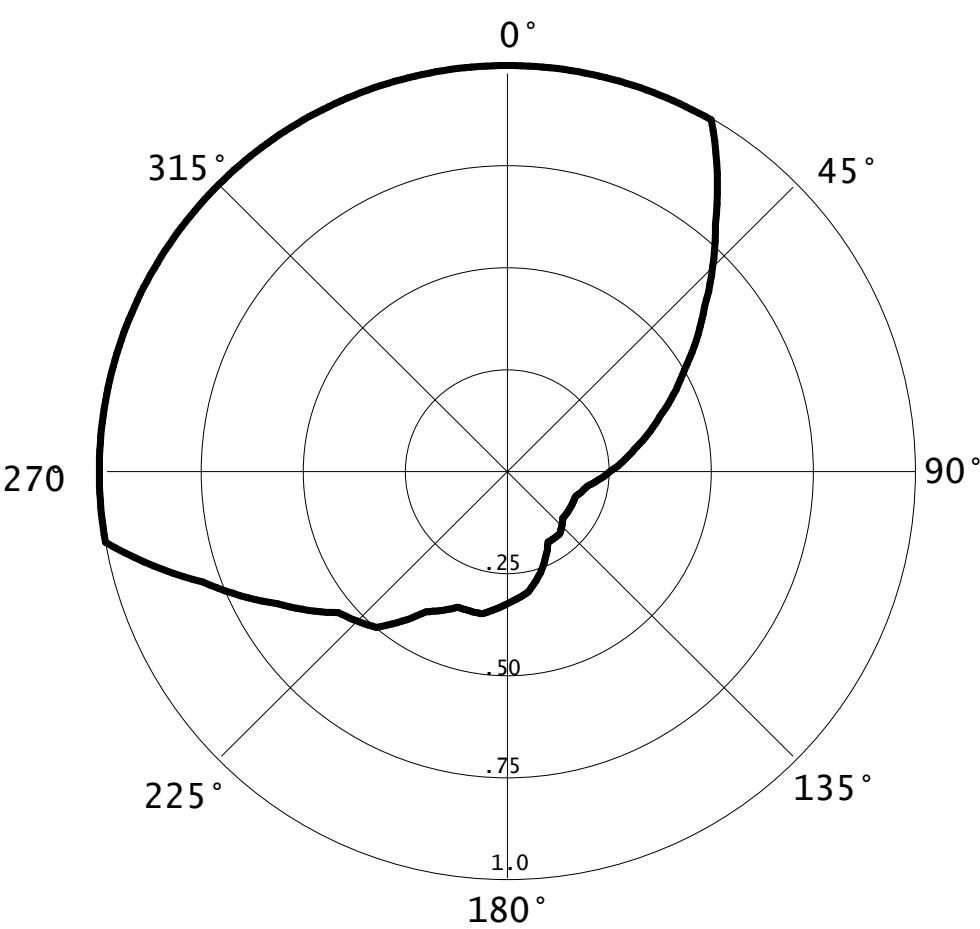
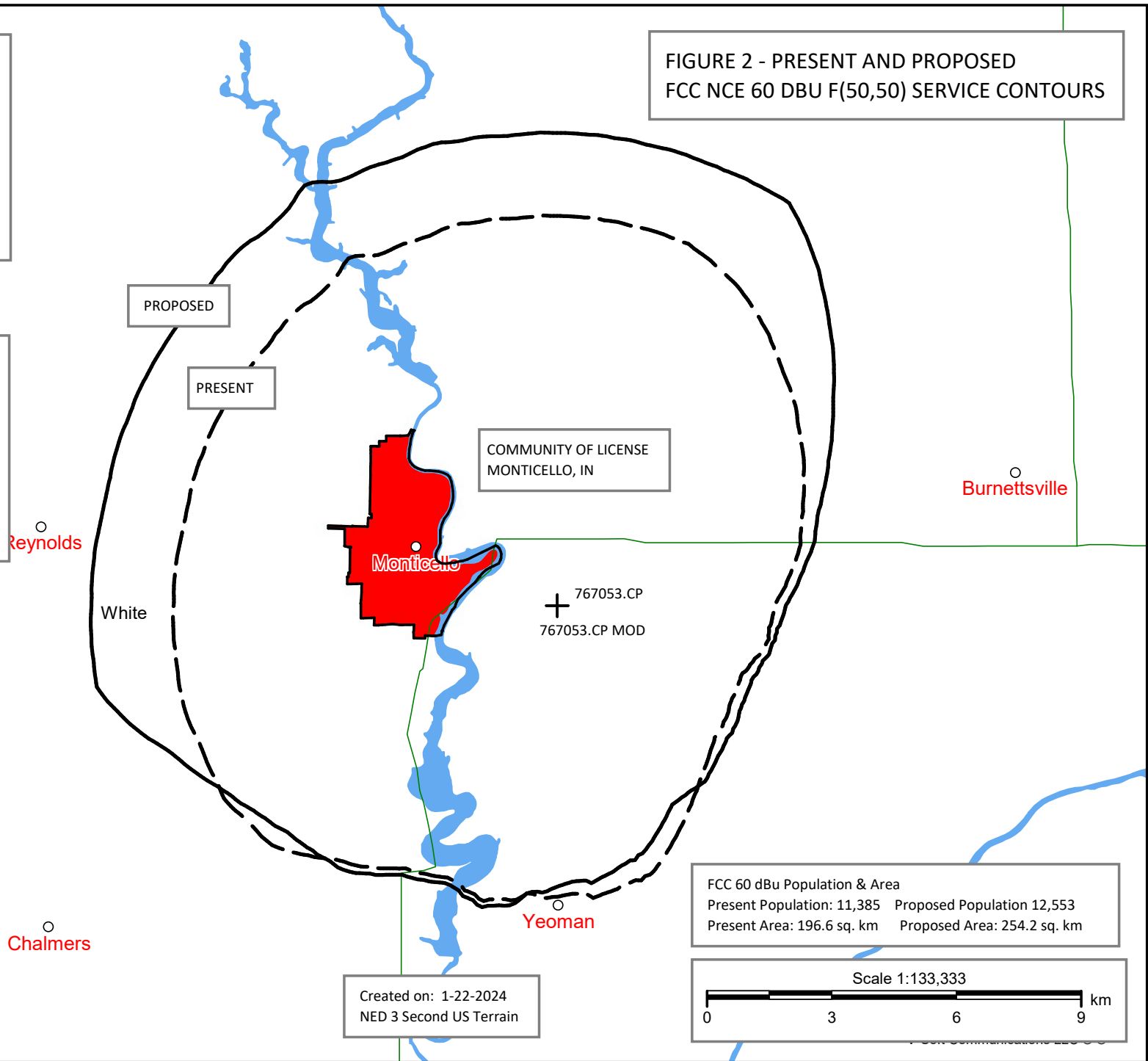


FIGURE 2 - PRESENT AND PROPOSED  
FCC NCE 60 DBU F(50,50) SERVICE CONTOURS

**767053.CP MOD**  
FCC LMS File: THIS APPLICATION  
FCC Facility ID: 767053  
NAD 83 Latitude: 40-43-57 N  
NAD 83 Longitude: 086-43-28 W  
ERP: 0.22 kW  
Channel: 220  
Frequency: 91.9 MHz  
Ant. RCAMSL Height: 289.0 m  
Horiz. Pattern: Directional

**767053.CP**  
FCC LMS File: 0000167463  
FCC Facility ID: 767053  
NAD 83 Latitude: 40-43-57 N  
NAD 83 Longitude: 086-43-28 W  
ERP: 0.10 kW  
Channel: 220  
Frequency: 91.9 MHz  
Ant. RCAMSL Height: 289.0 m  
Horiz. Pattern: Directional



Created on: 1-22-2024  
NED 3 Second US Terrain

FCC 60 dBu Population & Area	
Present Population: 11,385	Proposed Population 12,553
Present Area: 196.6 sq. km	Proposed Area: 254.2 sq. km

Scale 1:133,333

0 3 6 9 km

FIGURE 3 - CONTOUR TO CONTOUR OVERLAP STUDY

MODIFICATION OF CONSTRUCTION PERMIT  
Pensacola Christian College,  
REFERENCE CH# 220A - 91.9 MHz, Pwr= 0.22 kW DA, HAAT= 84.0 M, COR= 289 M  
40 43 57.0 N. Average Protected F(50-50)= 11.5 km  
86 43 28.0 W. 73.215 Directional

CH CITY	CALL	TYPE STATE	ANT	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
219A Kokomo	WIWC	LIC	CN IN	112.3 292.6	38.61 BMLED20030404ABG	40 36 00.10 86 18 08.00	2.100 91	33.4 319	22.4 The Moody Bible Institute	0.0	9.0
220A Lafayette	WJEF	LIC	CN IN	198.8 18.7	39.26 BMLED20041210ABG	40 23 52.10 86 52 26.00	0.250 28	31.4 226	9.3 Lafayette School Corp.	0.2	5.4
220B Joliet	WJCH	LIC	CN IL	300.8 119.8	150.55 BMLED20130530AMG	41 24 55.10 88 16 19.20	50.000 151	137.9 319	52.3 Family Stations, Inc.	1.3	59.4
221A Rochester	WROI	LIC	NCN IN	46.8 227.1	52.35 BLH20130325AJW	41 03 14.20 86 16 12.00	6.000 57	34.5 295	22.7 3 Towers Broadcasting Comp	7.2	16.0*
219A Wheatfield	WXPB	CP	CN IN	324.6 144.4	49.51 0000167801	41 05 42.20 87 03 59.40	0.900 62	20.7 269	13.9 CSN International	16.9	18.4
220A Zionsville	WITT	LIC	DCN IN	165.0 345.2	83.72 BLED20090602AAI	40 00 14.20 86 28 14.00	6.000 91	56.9 376	17.1 Kids First Incorporated	20.4	44.1

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Terrain database is USGS 03 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference Zone= - ZN1, Co to 3rd adjacent.  
All separation margins (if shown) include rounding.  
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
« = Station meets FCC minimum distance spacing for its class.

CONTOUR TO CONTOUR STUDY (NCE CHANNELS).

\* 73.215 REQUESTED TO THIS STATION - WROI is already operating as a 73.215 facility, therefore the use of maximum facilities at WROI is not required.

Figure 3

MAP OF CO-CHANNEL STATIONS OF CONCERN - NO PROHIBITIVE OVERLAP OCCURS

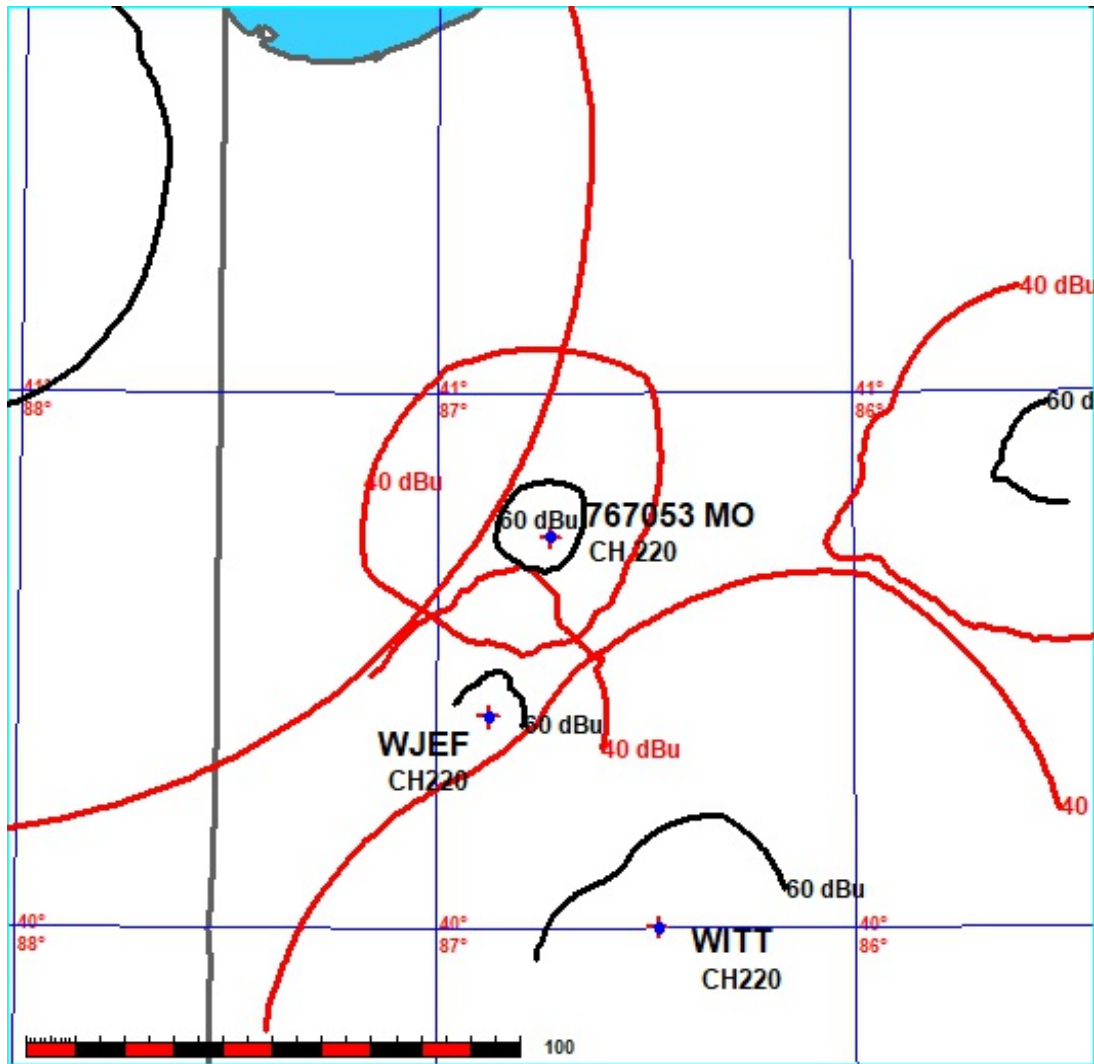


Figure 3

MAP OF 1<sup>ST</sup> ADJACENT -CHANNEL STATIONS OF CONCERN - NO PROHIBITIVE OVERLAP OCCURS

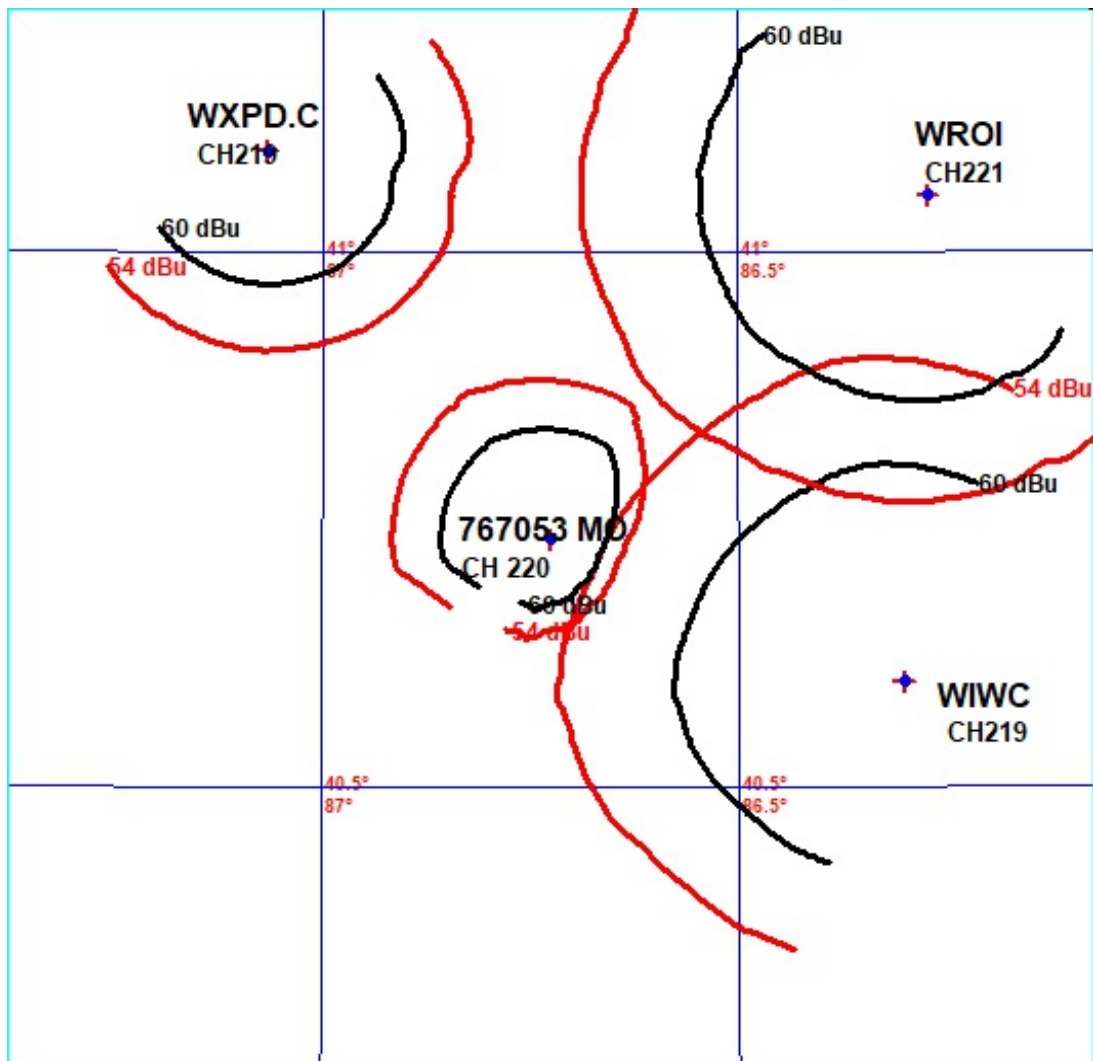
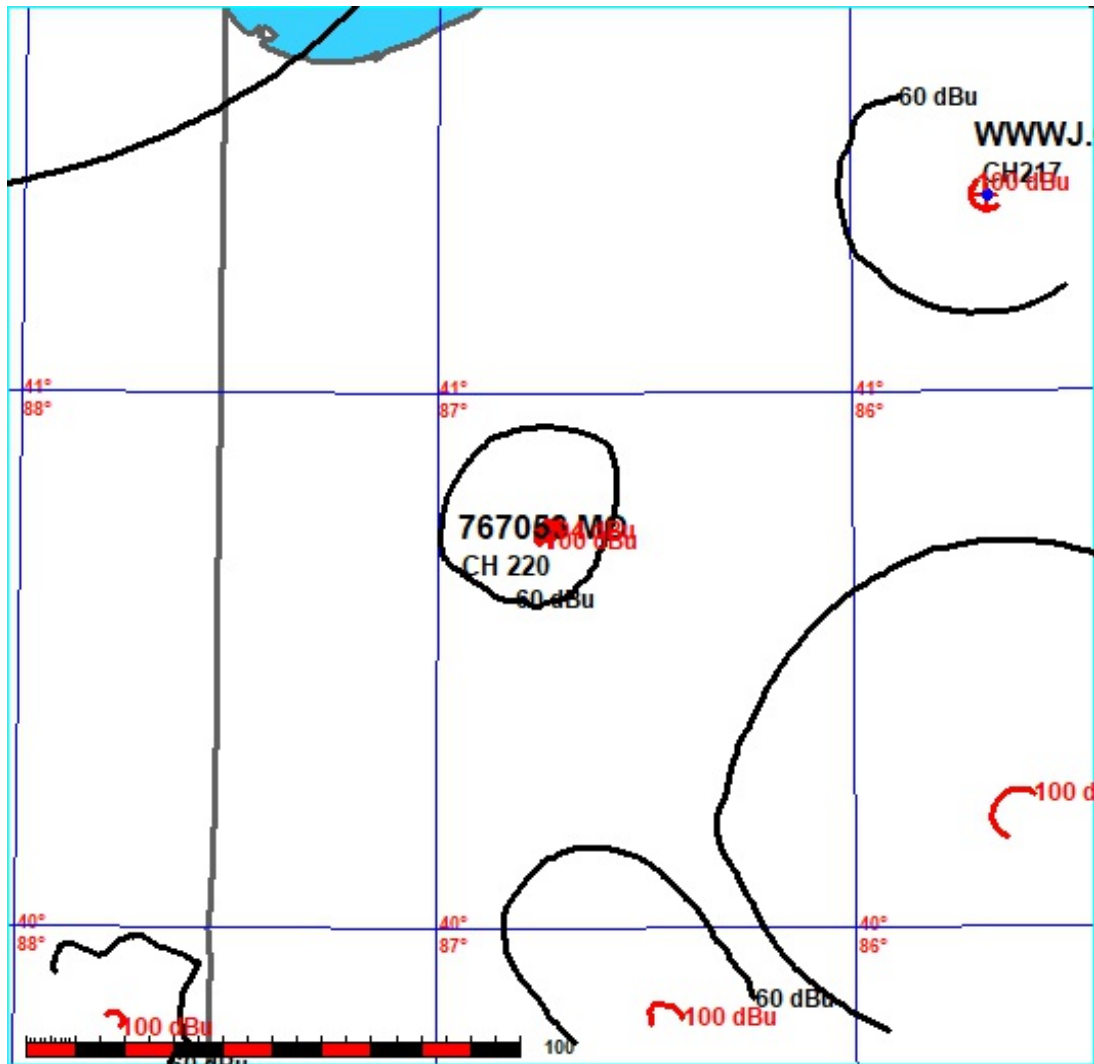




Figure 3

MAP OF 2<sup>ND</sup> & 3<sup>RD</sup> ADJACENT -CHANNEL STATIONS OF CONCERN  
NO PROHIBITIVE OVERLAP OCCURS

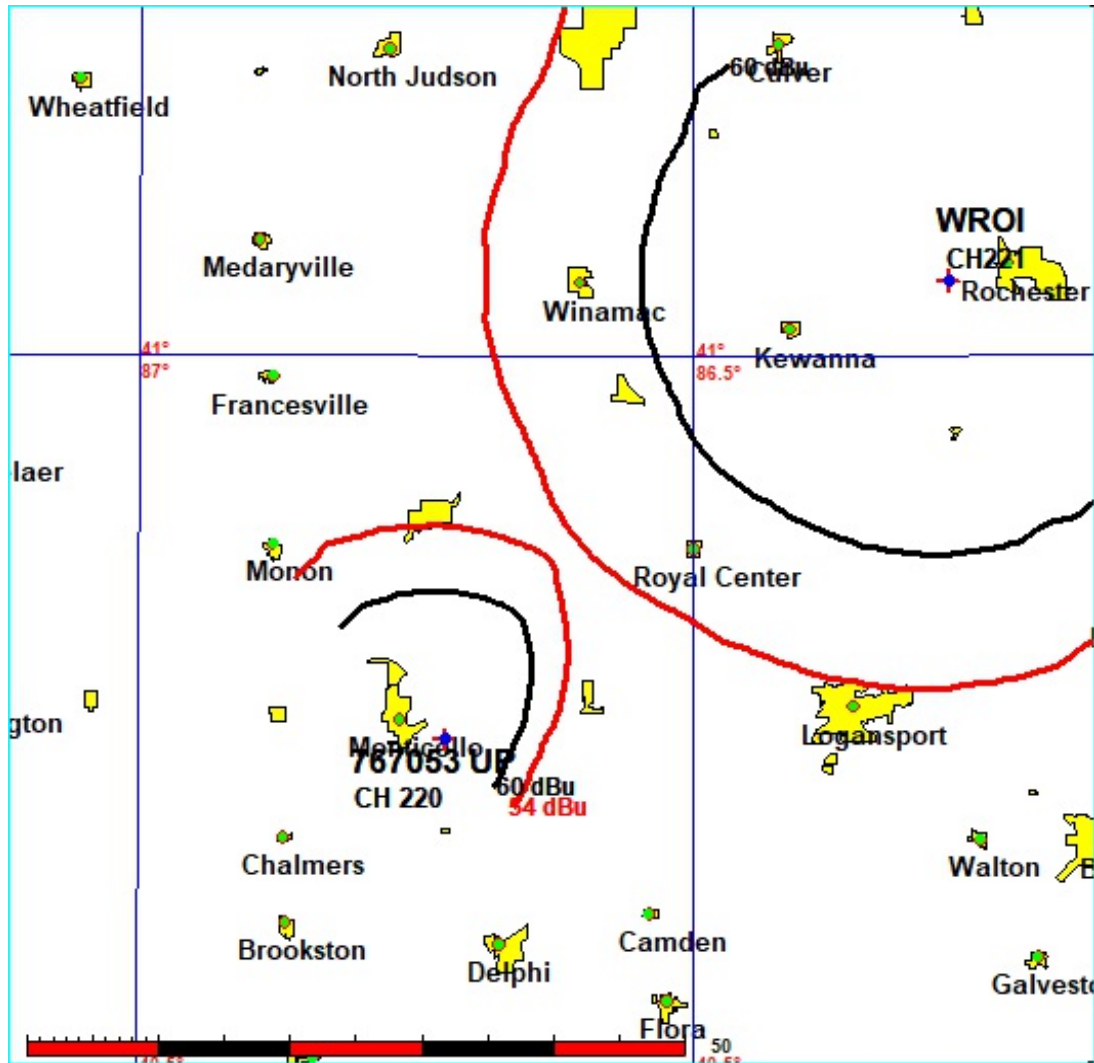


## REGARDING §73.215 PROCESSING

Channel 220A, Monticello, Indiana

The applicant requests processing under §73.215 as it pertains to WROI, Channel 221A, Rochester, Indiana, as indicated in the narrative engineering statement and associated engineering figures,

As shown below no prohibitive contour overlap occurs - WROI is a 73.215 facility, therefore its current operating values were used.



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## MINOR CHANGE TO CP APPLICATION FM CHANNEL 220A 91.9 MHZ 0.220 KW MAX ERP H&V 84.8 M HAAT MONTICELLO, IN

### ENVIRONMENTAL EVALUATION STATEMENT

A grant of this proposal would NOT be an action which would have a significant environmental effect as demonstrated in this environmental evaluation statement. Any changes in equipment, or construction, if necessary will not trigger any event with regards to Section 106 of the National Historical Preservation Act (NHPA). This is an existing and developed communications site with restricted fencing about the tower.

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights. Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

FCC FM MODEL CALCULATED POWER DENSITY AT 2 METERS AGL (USING EPA TYPE 1 ANTENNA) 2-BAY 1.0 SPACING

CR AGL 72.2 M ERP 0.22 KW (H&V)	MPE ( $\mu\text{W}/\text{cm}^2$ )	CALCULATED VALUE	% OF MPE	PASS/FAIL
CONTROLLED AREA	1000	1.7776 $\mu\text{W}/\text{cm}^2$	0.18%	PASS
PUBLIC AREA	200		0.89%	PASS

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs are posted at the site. The applicant will coordinate exposure procedures with any co-located facilities and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

January 22, 2024

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