

TECHNICAL EXHIBIT  
AMENDMENT TO PENDING APPLICATION  
NEW FM STATION  
FACILITY ID 90986  
SOUTH CHARLESTON, WEST VIRGINIA  
CH 207A 0.3 KW 161 M

Technical Narrative

This technical exhibit supports an amendment to the pending application for a new non-commercial educational (NCE) FM station on channel 207A (89.3 MHz) at South Charleston, West Virginia<sup>1</sup>. The proposed FM station has a pending application to operate on channel 207A with a non-directional antenna effective radiated power (ERP) of 1.0 kilowatt (kW) (circular polarization) and an antenna height above average terrain (HAAT) of -63 meters. This amendment proposes to change transmitter site, reduce ERP and increase HAAT in order to resolve a short-spacing to I.F. related class B station WVAF(FM) on channel 260 at Charleston, VA (BLH-19930423KB).

Proposed Facilities

The proposed transmitter site, shown in Figure 1, is located roughly 6 kilometers north-northeast of the previous site (NAD27 coordinates: 38-26-37 N, 81-36-08 W). The FCC antenna structure registration number is 1033626 (see Figure 2). It is proposed to side-mount the antenna at the 31-meter (102 foot) level of the existing tower, and operate with a non-directional ERP of 0.3 kilowatt

(300 watts), circular polarization, and an antenna HAAT of 161 meters.

#### Blanketing Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially 0.2 kilometer from the transmitting site. No interference problems are expected; however the applicant recognizes its responsibility to resolve complaints of blanketing interference as required by Section 73.318.

#### Coverage Contours

The FCC predicted coverage contour for the proposed FM station antenna was calculated in accordance with Section 73.313. No consideration was given to terrain roughness correction factors. The average elevations from 3 to 16 kilometers along 8 radials evenly spaced at 45-degree intervals were obtained from the U.S.G.S. 3-second digitized terrain database. The antenna radiation center heights above average terrain in the individual directions and the ERP were used in conjunction with the F(50,50) curves of Section 73.333 (Figure 1) to determine distances to contour.

The coverage map in Figure 3 shows the proposed FM station's 70 and 60 dBu coverage contours. The total population of South Charleston, WV according to the 2000 U.S. Census is 13,546 people, of which 100 percent, fall within the 60-dBu contour of the proposed FM station. It is noted that there are some "minor" terrain obstructions between the proposed transmitter site and the city of

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<sup>1</sup> See FCC File Number BPED-19980619MF.

South Charleston. However, calculations using the Longley-Rice propagation model show that nearly all of South Charleston will receive a 60 dBu signal or greater. Therefore, the proposed FM station meets the coverage requirement in Section 73.515 of the Commission's rules to provide at least 50% of the population within the community of license with a 60 dBu signal.

#### Allocation Considerations

Sheet 1 of Figure 4 contains a contour overlap study based on pertinent co-channel and adjacent protected and interfering contours as specified in Section 73.509 of the Commission's rules. The allocation requirements outlined in Section 73.509 concern only prohibited overlap, not separation requirements. The FCC's FM database was used as the basis for the study. The study indicates that there are no short-spacings to any pertinent commercial channel stations. It does indicate that there are short-spacings to two non-commercial channel stations, namely the licensed operations of WOUL-FM on channel 206B at Ironton, OH (BLED-19871014KH) and WVWV(FM) on channel 210B at Huntington, WV (BLED-19930423KB). Both of these operations have their pertinent protected and interfering contours plotted on the map in Sheet 2 of Figure 4. It is noted that no prohibited overlap will occur between the proposed FM operation and either WOUL-FM or WVWV(FM).

This herein application remains mutually exclusive with the pending application for channel 208A at South Charleston, West Virginia (BPED-19980113MB).

The proposed site is over 1,900 kilometers from the closest point of the Mexican border and approximately 366 kilometers from the closest point of the Canadian border. Therefore, it is believed that the proposal complies with the U.S./Mexican and U.S./Canadian FM Agreements.

The closest FCC monitoring station is at Laurel, MD located more than 420 kilometers to the east. The closest point to the National Radio Quiet Zone in Virginia/West Virginia is located roughly 96 kilometers to the east. The closest point to the Table Mountain Radio Quiet Zone in Colorado is located over 2,000 kilometers to the west. The closest radio astronomy site conducting research on TV channel 37 is at Green Bank, West Virginia located roughly 153 kilometers to the east. These separations are considered sufficient to avoid interference from the proposed operation.

#### Channel 6 Protection

Station WVVA on channel 6 (Bluefield, WV) is located 136.9 kilometers south of the proposed FM station. The proposed "worst-case" FM interfering contour is located entirely outside the predicted Grade B (47 dBu) contour for WVVA. Therefore, the proposed FM operation is not predicted to cause any interference to the TV Channel 6 operation. Figure 5 displays the proposed transmitter site and the Grade B (47 dBu) contour of station WVVA.

Radiofrequency Electromagnetic Field Exposure

The proposed FM facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. A "worst-case" relative field value of 1.0 was used for the new FM operation's non-directional antenna, along with an ERP of 0.3 kilowatts (circular polarization). The proposed power density at the base of the structure and 2 meters above ground level (31 meters) is calculated to be 0.0238 mW/cm<sup>2</sup>, which is 11.9% of the recommended limit of 0.2 mW/cm<sup>2</sup> for FM channels, applicable to general population/uncontrolled exposure areas. However, since there are no other co-located high power emitters, it is believed that this proposal is in compliance with the FCC's RF emission rules.

Access to the transmitting site is restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed new FM operation appears to be otherwise categorically excluded from environmental processing.

It is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be provided to the FCC by the tower owner as part of the tower registration process.

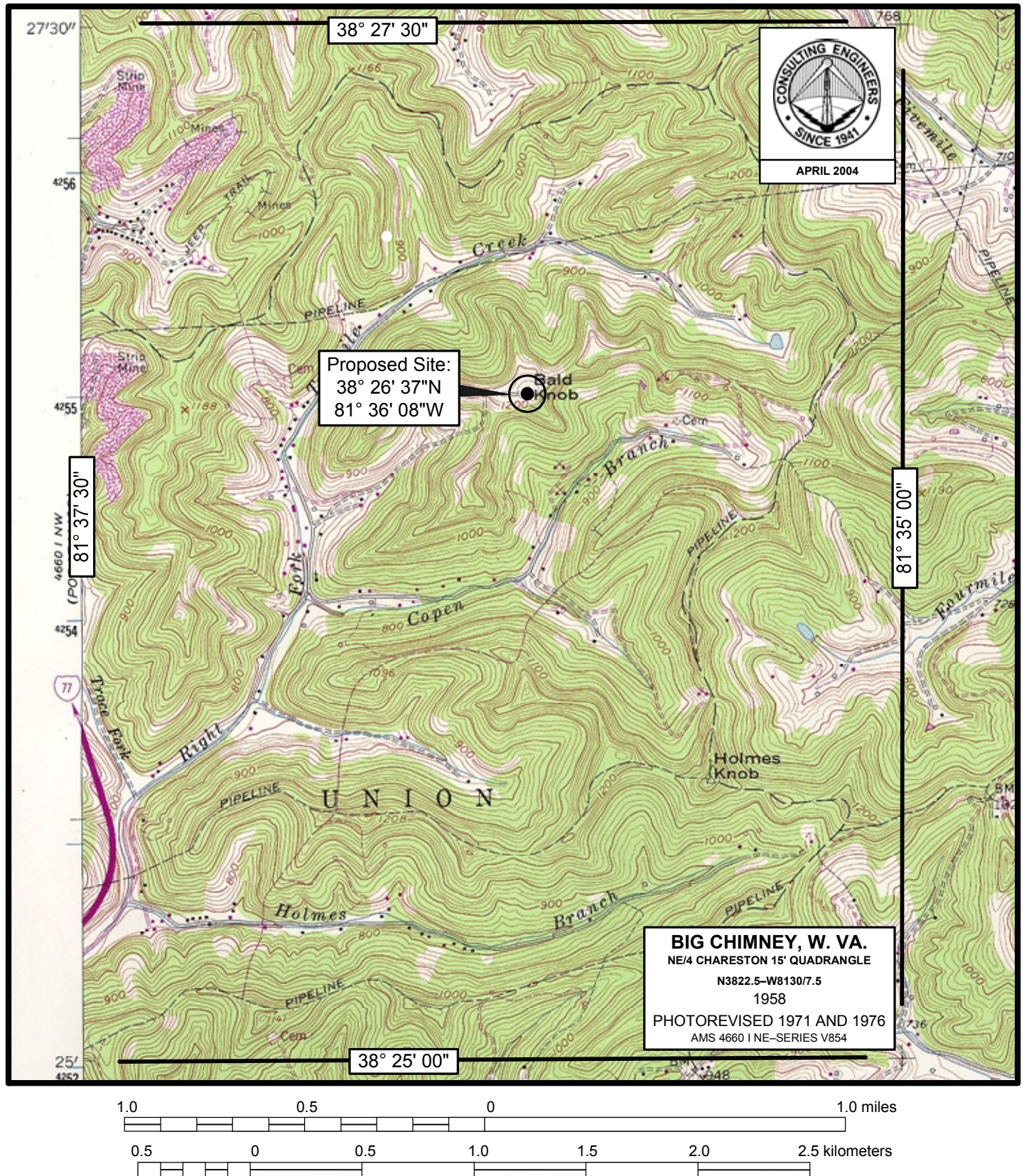
Charles A. Cooper

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941) 329-6000

April 8, 2004



Figure 1



## PROPOSED TRANSMITTER LOCATION

NEW NCE-FM STATION  
 SOUTH CHARLESTON, WEST VIRGINIA  
 CH 207A 0.3 KW 161 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

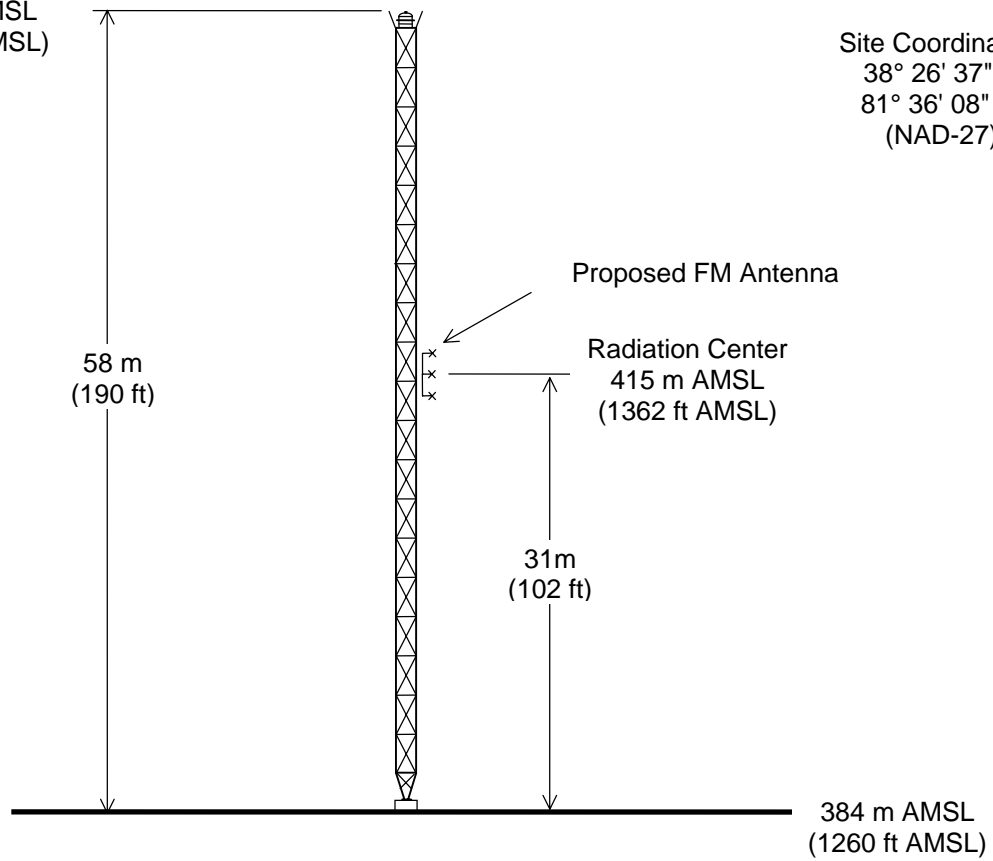
Figure 2



Antenna Reg. No. 1033626

442 m AMSL  
(1450 ft AMSL)

Site Coordinates:  
38° 26' 37" N  
81° 36' 08" W  
(NAD-27)



Not to Scale

## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

NEW NCE-FM STATION

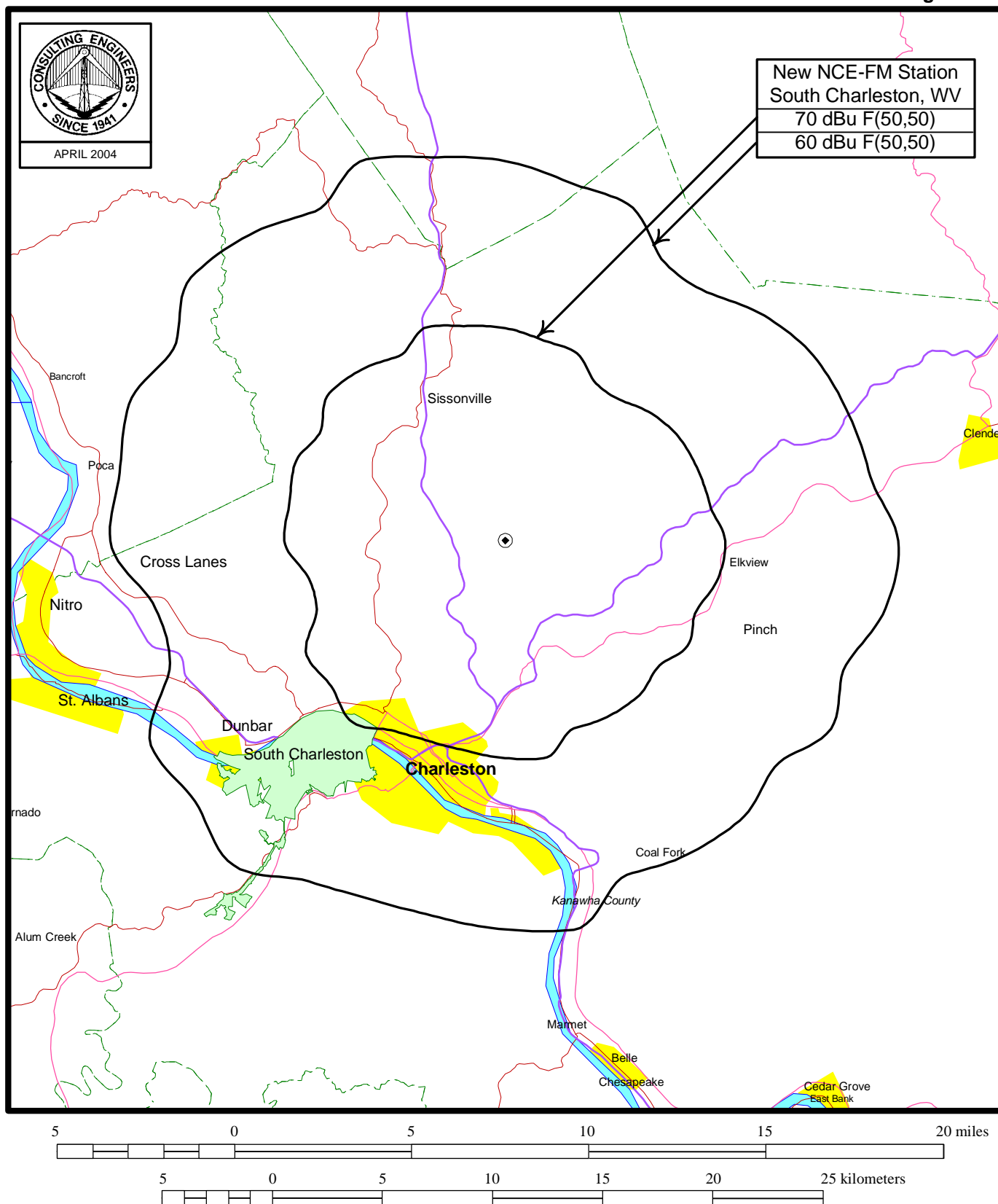
SOUTH CHARLESTON, WEST VIRGINIA

CH 207A    0.3 KW    161 M

du Treil, Lundin & Rackley, Inc.    Sarasota, Florida



Figure 3



## **PREDICTED COVERAGE CONTOUR**

**NEW NCE-FM STATION  
SOUTH CHARLESTON, WEST VIRGINIA**

**CH 207A 0.3 KW 161 M**

du Treil, Lundin & Rackley, Inc., Sarasota, Florida

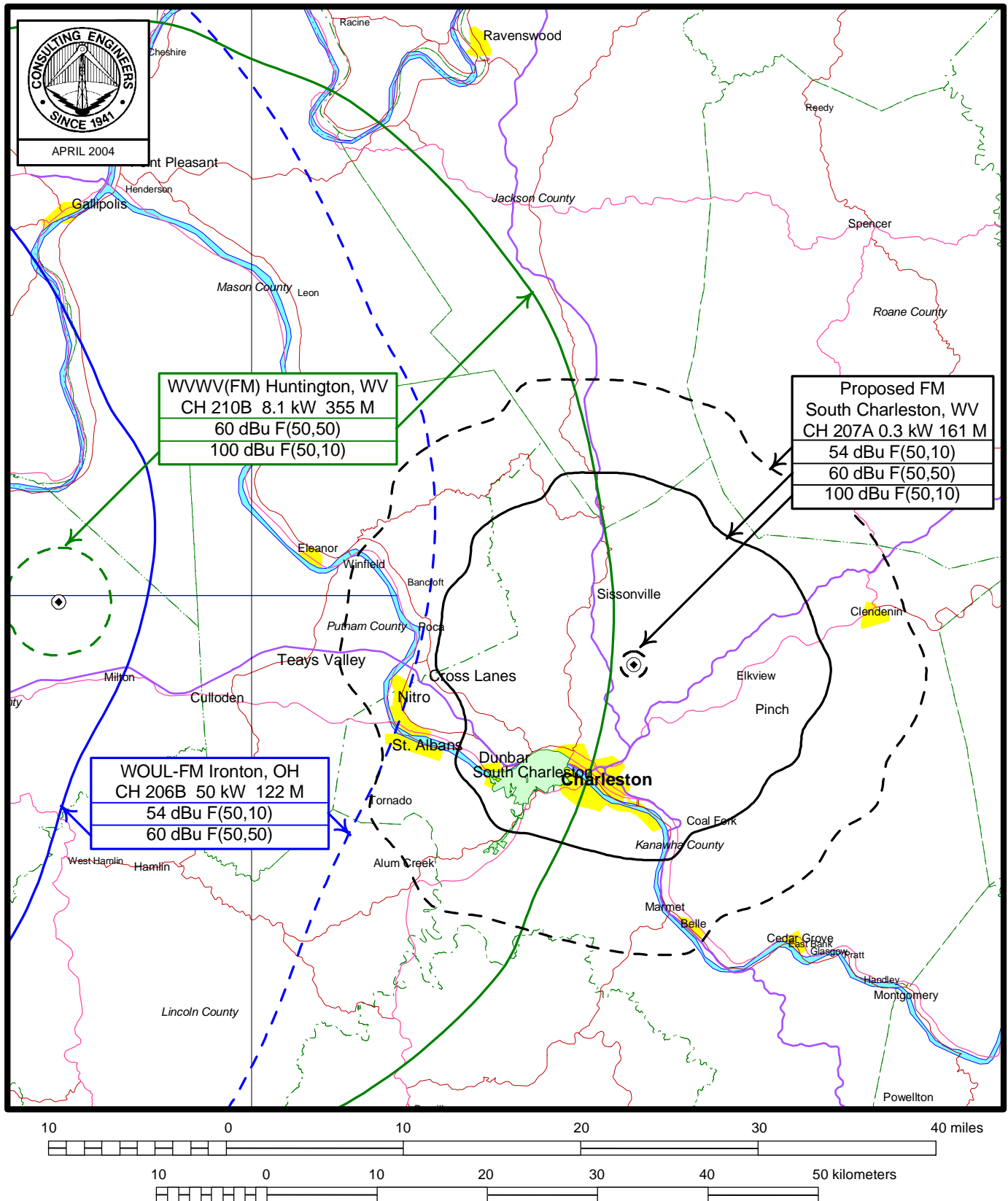
CDBS FM SEPARATION STUDY - PROPOSED SITE

Separation Buffer: 32 km

Channel: 207 A

Coordinates: 38-26-37 81-36-08

Call Id	City St	File Status	File Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. 215	(km) 207
WOUL-F 50146	IRONTON OH	BLED LIC C	19871014KH	206B 89.1	50 122	N	38-31-23 082-39-20	N	275.8	<b>92.33</b>	<b>96.0</b>	<b>113.0</b>
<i>(No actual contour overlap. See Figure 4, Sheet 2.)</i>												
WVTF 70338	ROANOKE VA	BLED LIC C	20020418AAL	206C 89.1	100 600	N	37-11-56 080-09-02	N	136.9	188.21	142.0	165.0
980619 90986	SOUTH CHARL WV	BPED APP C	19980619MF	207A 89.3	1 -63	N	38-23-34 081-35-14	N	167.0	5.79	92.0	115.0
<i>(Applicant's Existing Proposed Facility.)</i>												
980113 89625	SOUTH CHARL WV	BPED APP C	19980113MB	208A 89.5	0.15 106	N	38-18-38 081-36-52	N	184.1	14.81	49.0	72.0
<i>(Mutually Exclusive (MX) Application.)</i>												
WCVV 4640	BELPRE OH	BLED LIC C	19980622KC	208A 89.5	4.4 117	N	39-19-27 081-37-33	N	358.8	97.77	49.0	72.0
NEW 123064	KINGSTON WV	BNPED APP C	20000317ABO	209A 89.7	0.25 0	N	37-56-51 081-18-29	N	154.9	60.80	25.0	31.0
WVWV 71656	HUNTINGTON WV	BLED LIC C	19940810KZ	210B 89.9	8.1 355	N	38-29-41 082-12-03	N	276.4	<b>52.55</b>	<b>63.0</b>	<b>69.0</b>
<i>(No actual contour overlap. See Figure 4, Sheet 2.)</i>												
WVAF 71663	CHARLESTON WV	BLH LIC C	19930423KB	260B 99.9	50 131	N	38-19-07 081-32-28	N	159.0	14.87	0.0	15.0



## CONTOUR OVERLAP MAP

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Figure 5

