

TECHNICAL EXHIBIT
MINOR CHANGE APPLICATION
RADIO STATION WQUS(FM) (FACILITY ID 14224)
LAPEER, MICHIGAN

JANUARY 12, 2005

CH 276A 2.6 KW 104 M

TECHNICAL EXHIBIT
MINOR CHANGE APPLICATION
RADIO STATION WQUS(FM) (FACILITY ID 14224)
LAPEER, MICHIGAN
CH 276A 2.6 KW 104 M

Table of Contents

Technical Narrative

Figure 1	Transmitter Site
Figure 2	Antenna and Supporting Structure
Figure 3	Predicted FCC Coverage Contours
Figure 4	Allocation Study

TECHNICAL EXHIBIT
MINOR CHANGE APPLICATION
RADIO STATION WQUS(FM) (FACILITY ID 14224)
LAPEER, MICHIGAN
CH 276A 2.6 KW 104 M

Technical Narrative

The technical exhibit of which this narrative is part was prepared on behalf of radio station WQUS(FM) on Channel 276A assigned to Lapeer, Michigan. WQUS(FM) is licensed for operation with a non-directional antenna maximum effective radiated power (ERP) of 3 kilowatts (kW) and an antenna height above average terrain (HAAT) of 91 meters.¹ By means of this application, it is intended to correct the transmitter site geographic coordinates that were recently surveyed after a replacement tower was erected adjacent to the existing tower. The antenna radiation center above ground level is also slightly increased.

Existing Transmitter Location

The corrected WQUS(FM) transmitter site location is uniquely described by the following NAD-27 coordinates:

43° 04' 43" North Latitude
83° 11' 24" West Longitude

This site is located 0.14 miles (0.2 kilometer) south-southeast of the licensed geographic coordinates. A map of the transmitter site is provided in Figure 1. A sketch showing the antenna and supporting structure is shown on Figure 2. It is proposed to operate

with a non-directional ERP of 2.6 kW, circular polarization with an antenna HAAT of 104 meters.

Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially 0.7 kilometer from the transmitting site. No interference problems are expected as the station has been operating from this site for several decades; however the applicant recognizes its responsibility to resolve complaints of blanketing interference as required by Section 73.318.

FCC Predicted 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 station's predicted coverage contours. According to the 2000 U.S. Census, Lapeer, Michigan has a total population of 9,072 and covers an area of 14.3 square kilometers. As the map illustrates, the FCC predicted 70 dBu contour will encompass 7,500 persons, or 83 percent of the total population and an area of 13.1 kilometers, or 92 percent of the total area. This is above the 80 percent minimum limit used by the Commission to establish compliance with the community coverage requirement.

¹ See FCC File Number: BLH-19830812AM

² OET Bulletin 65, Second Edition 97-01, August, 1997.

Allocation Study

Sheet 1 of Figure 4 contains an FM separation study from the proposed WQUS(FM) site. The proposed site complies with the minimum distance separation requirements of Section 73.207 for Class A operation on channel 276A towards all existing, authorized and proposed stations and allotments except to its WDMK(FM) on Channel 274B at Mount Clemens, Michigan, WWWW(FM) on Channel 275B at Ann Arbor, Michigan, CBEF on Channel 276A at Leamington, Ontario, Canada and an allotment for Channel 276B at St. Thomas, Ontario, Canada. Each short-spacing is discussed separately below.

WQUS(FM) and WDMK(FM) on Channel 274B at Mount Clemens are presently authorized under Section 73.213(c) of the Commission's Rules. By this site correction, WQUS(FM) would be further short-spacing WDMK(FM) from 64.1 kilometers to 63.9 kilometers. Since this site correction is minor (less than 0.25 kilometer), it is considered "de minimis". If a waiver of section 73.213(c) is necessary, it is respectfully requested.

WQUS(FM) and WWWW(FM) on Channel 275B at Ann Arbor are presently authorized under Section 73.213(c) of the Commission's Rules. By this site correction, WQUS(FM) would be further short-spacing WWWW(FM) from 105.1 kilometers to 105.0 kilometers. Since this minimum distance separation still satisfies the Commission 73.213(c) minimum distance separation of 105 kilometers between first-adjacent channel Class A and Class B facilities, the proposed WQUS(FM) is in compliance with the Commission's Rules.

WQUS(FM) is presently short-spaced to an allotment for Channel 276B at St. Thomas, Ontario, Canada. By this site correction, WQUS(FM) would be further short-spacing this allotment from 168.8 kilometers to 168.6 kilometers. However, as shown in Sheet 2 of Figure 4, the predicted WQUS(FM) 34 dBu co-channel Canadian interfering contour does not encompass any of the St. Thomas 65-kilometer protected circle. Therefore, this St. Thomas facility should not be an allocation issue.

WQUS(FM) is presently short-spaced to CBEF on Channel 276A at Leamington, Ontario, Canada. By this site correction, WQUS(FM) would be further short-spacing CBEF from 115.9 kilometers to 115.6 kilometers. There is contour overlap between the WQUS(FM) licensed and proposed 34 dBu co-channel Canadian interfering contour and the CBEF 33-kilometer protected circle. However, the proposed WQUS operation will *reduce* this existing contour overlap with CBEF.

Radiofrequency Electromagnetic Field Exposure

The proposed facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OET Bulletin No. 65, Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.² The power density at the base of the tower was calculated using the appropriate procedures contained in the Bulletin.

The proposed WQUS(FM) antenna will be side-mounted on a new tower. The antenna center of radiation for the proposed ERI 2-Bay “rototiller” antenna is located 73.8 meters (242 feet) above ground level. The calculated power density at 2 meters above ground level (AGL) was calculated using the appropriate equation contained in the Bulletin. Using a “worst-case” vertical relative field value of 1.0, the total effective radiated power of 5.2 kilowatts (horizontal + vertical polarizations) and an antenna center of radiation height above ground level of 73.8 meters, the calculated power density at 2 meters above the ground is 0.034 milliwatts per square centimeter (mW/cm^2), or 17 percent of the Commission’s recommended limit applicable to uncontrolled exposure areas ($0.2 \text{ mW}/\text{cm}^2$ for FM frequencies). Since there are no other known broadcast facilities on the tower, or within 200 meters of the site, the proposal is less than the FCC’s total (100%) recommended limit.

Access to the tower site will be restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that

the human exposure to radiofrequency electromagnetic fields will not exceed the FCC guidelines.

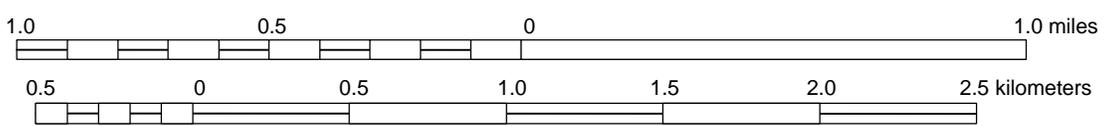
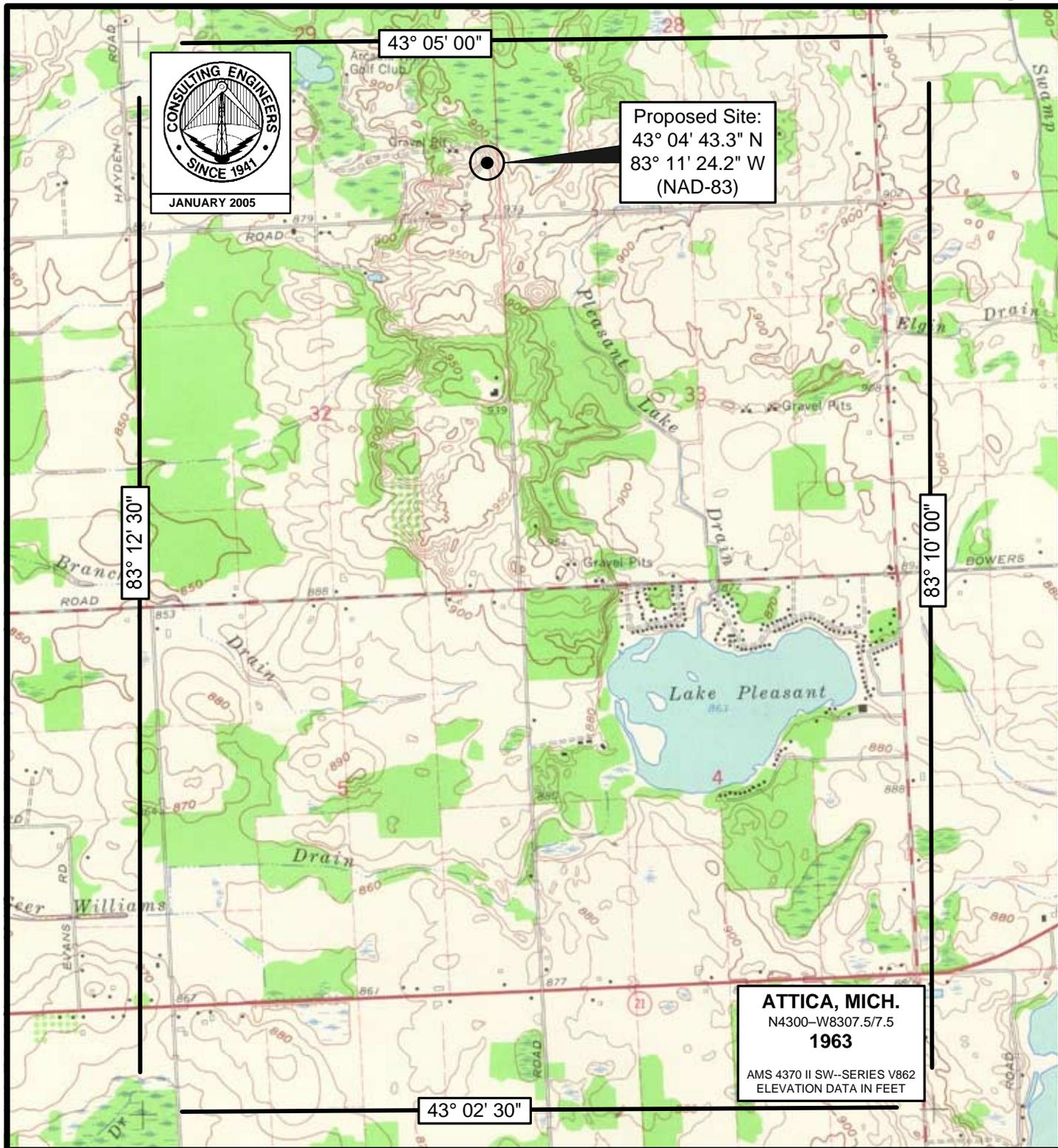
It is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be provided to the FCC by the tower owner as part of the tower registration process.

Jonathan N. Edwards

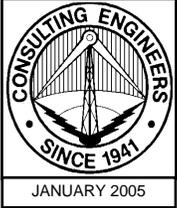
du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237
941.329.6000

January 12, 2005

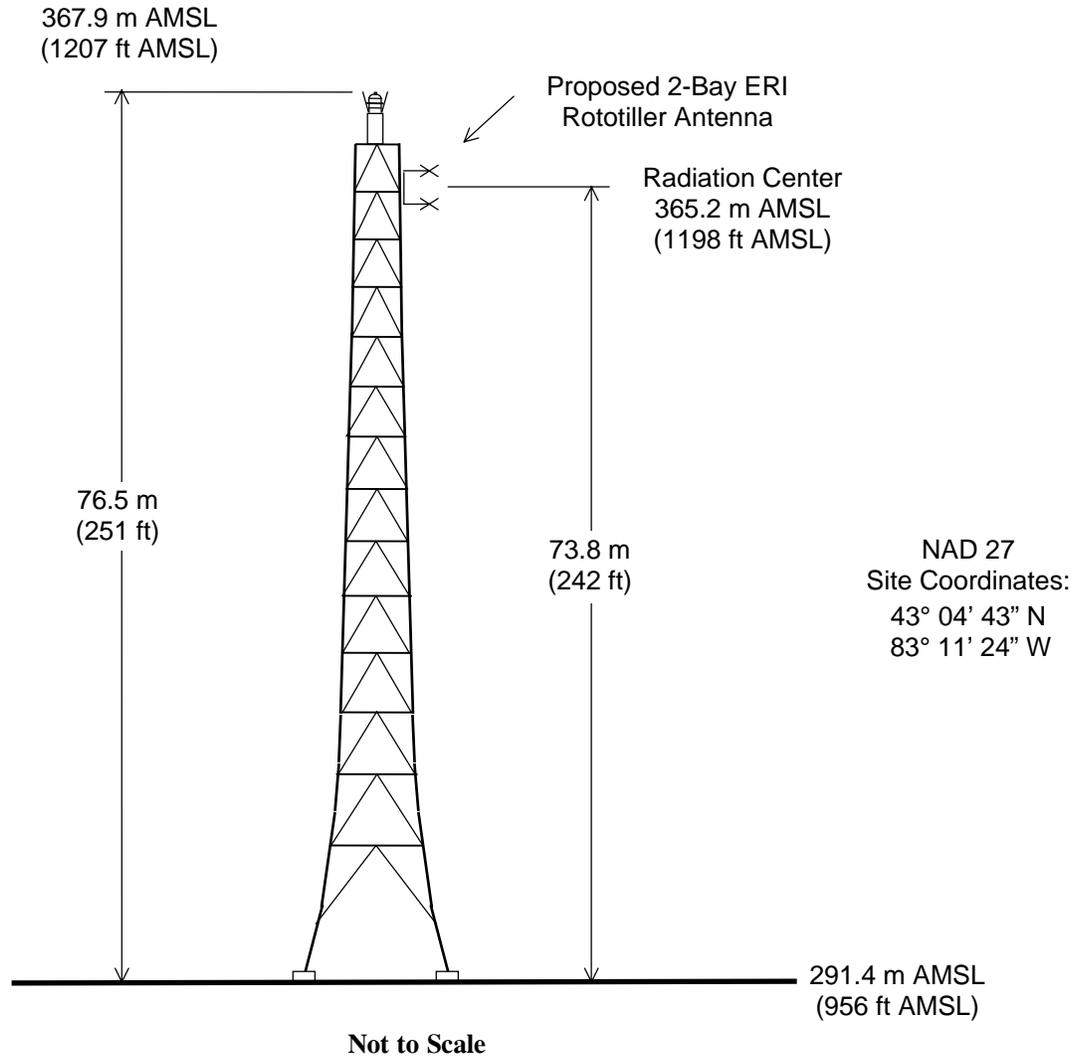
Figure 1



PROPOSED TRANSMITTER SITE
RADIO STATION WQUS(FM)
LAPEER, MICHIGAN
CH 276A 2.6 KW 104 M
du Treil, Lundin & Rackley, Inc. Sarasota, Florida



FAA Notification Filed



PROPOSED ANTENNA AND SUPPORTING STRUCTURE

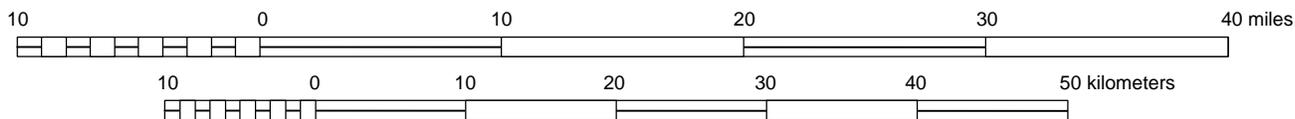
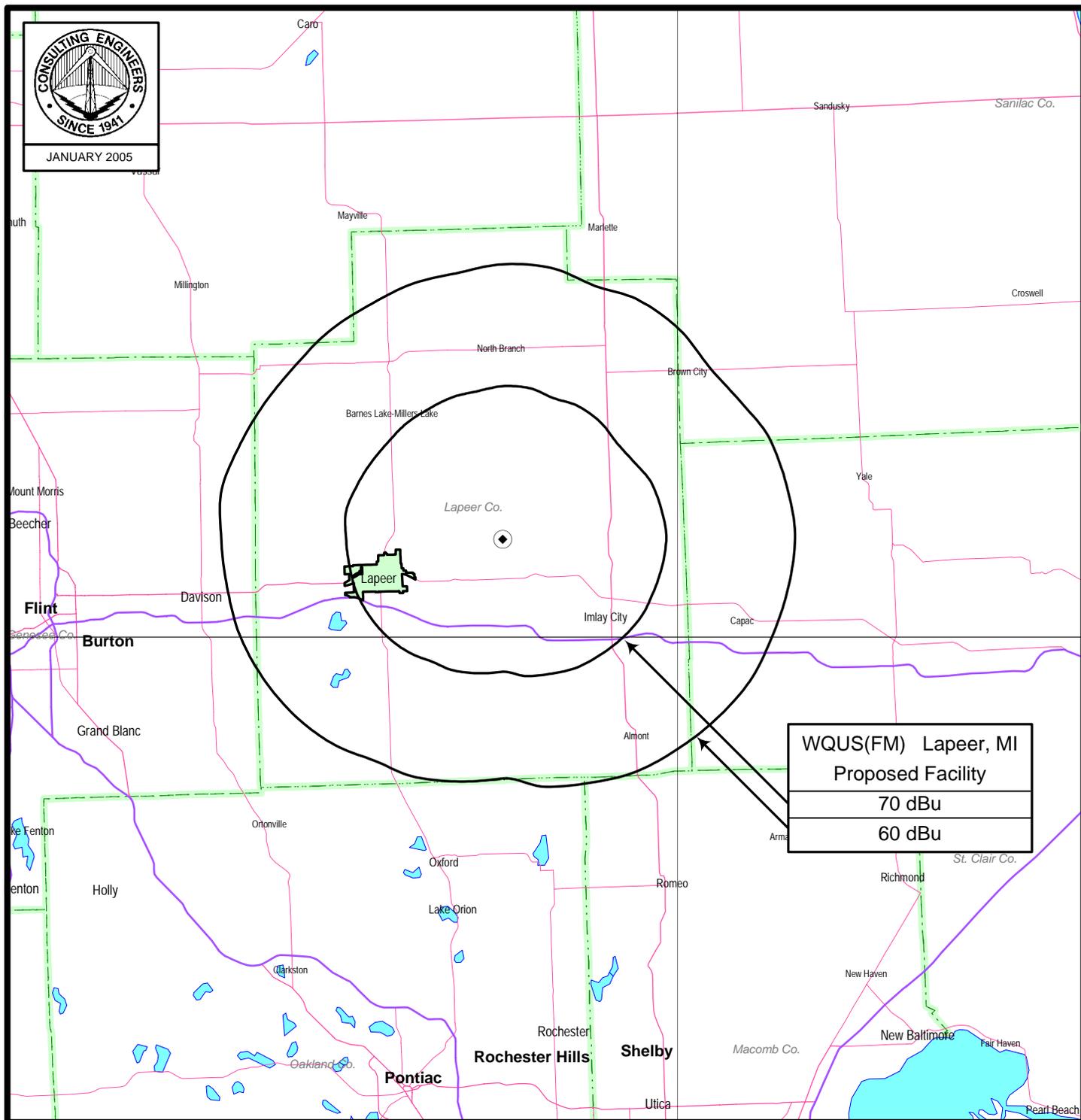
RADIO STATION WQUS(FM)

LAPEER, MICHIGAN

CH 276A 2.6 KW 104 M

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

Figure 3



PREDICTED FCC COVERAGE CONTOURS

FM STATION WQUS(FM)

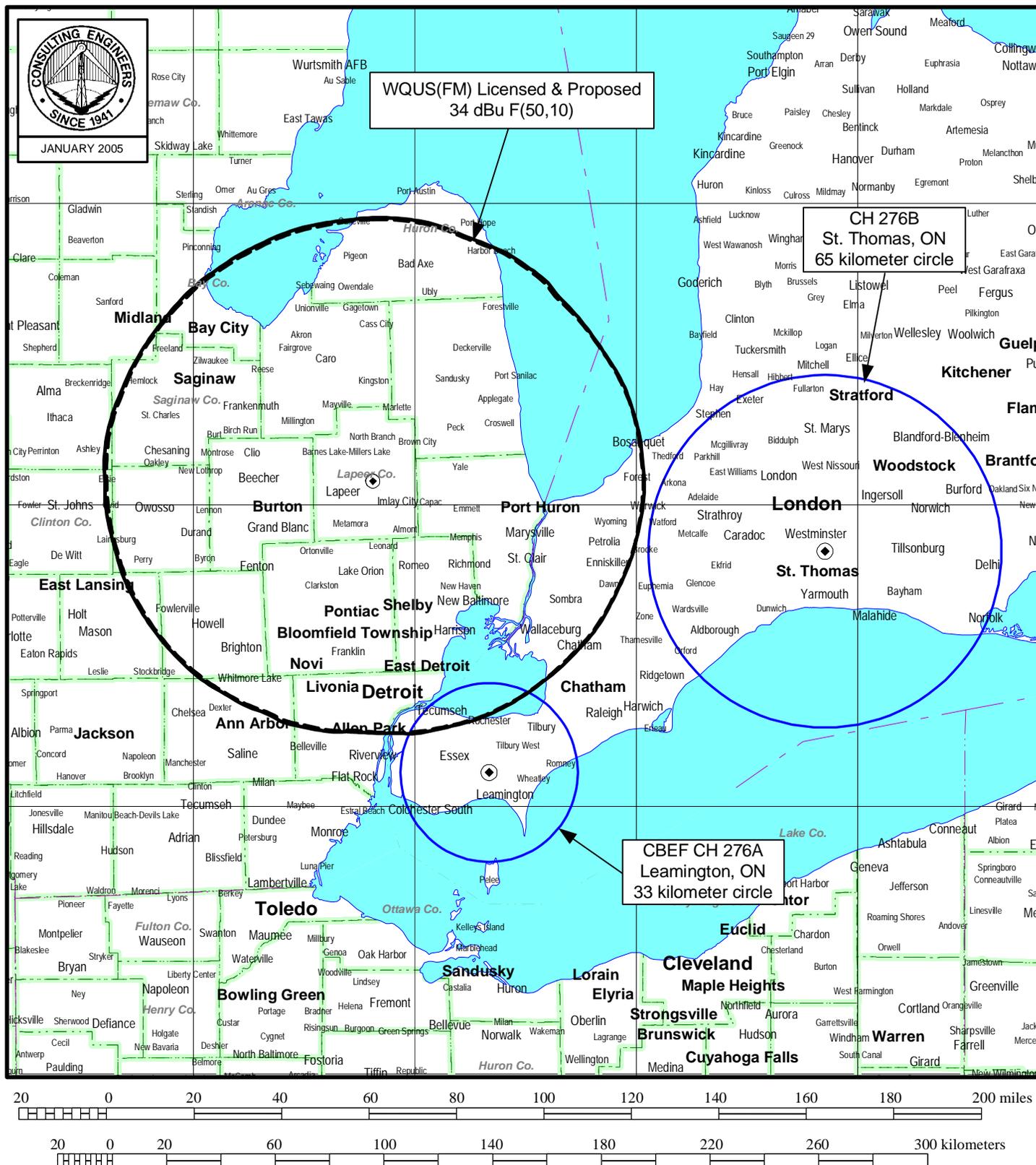
LAPEER, MICHIGAN

CH 276A 2.6 KW 104 M

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

CDBS FM SEPARATION STUDY - PROPOSED SITE

Channel: 276 A												
Separation Buffer: 32 km												
Coordinates: 43-04-43 N 83-11-24 W												
Call Id	City St	File Status	Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km) 73.215	73.207
WBGV 23435	MARLETTE MI	BLH LIC C	19990621KC	223A 92.5	3 100	N 29067	43-17-10 082-58-17	N	37.5	29.11	0.0	10.0
WIOG 22675	BAY CITY MI	BLH LIC C	19850207KK	273B 102.5	86 244	N	43-28-24 083-50-40	N	309.9	68.89	63.0	69.0
<i>(No allocation issue. Separation distance rounds to 69 kilometers.)</i>												
WDMK 54915	MT CLEMENT MI	BMLH LIC C	20000512AAD	274B 102.7	50 152	Y 33915	42-32-39 082-54-09	N	158.4	63.86	63.0	69.0
<i>(Section 73.213(c) processing to WDMK. See Technical Narrative.)</i>												
WWWW 41080	ANN ARBOR MI	BLH LIC C	19871110KA	275B 102.9	49 152	Y 13809	42-15-04 083-48-28	N	209.0	104.95	96.0	113.0
<i>(Continued 73.213(c) processing to WWWW. See Technical Narrative.)</i>												
WQUS 14224	LAPEER MI	BLH LIC C	19830812AM	276A 103.1	3 91	N	43-04-49 083-11-30	N	323.8	0.23		
<i>(Applicant's existing facility.)</i>												
CBEF1F 95380	LEAMINGTON ON	C		276A 103.1	1 78	N	42-06-46 082-39-52	N	158.0	115.63	92.0	151.0
<i>(Interfering contour is reduced over that of licensed WQUS operation. Therefore, less impact to CBEF. See Sheet 2.)</i>												
WGDN-F 2484	GLADWIN MI	BLH LIC C	20021213AAB	276C3 103.1	11.5 138	N	43-57-14 084-32-56	N	312.1	146.73	119.0	142.0
94490	ST. THOMAS ON	C		276B 103.1	50 150	Y	42-50-47 081-08-52	N	98.1	168.62	92.0	210.0
<i>(Interfering contour is reduced over that of licensed WQUS operation. Therefore, less impact to St. Thomas. See Sheet 2.)</i>												
94490	ST. THOMAS ON	C		276B 103.1		N	42-50-47 081-08-52	N	98.1	168.62	92.0	210.0
<i>(Interfering contour is reduced over that of licensed WQUS operation. Therefore, less impact to St. Thomas. See Sheet 2.)</i>												
WMUZ 73298	DETROIT MI	BLH LIC C	19851223KG	278B 103.5	50 142	N	42-22-40 083-14-32	N	183.1	77.97	63.0	69.0
WCZE 30944	HARBOR BEACH MI	BPH CP C	20041020ADM	279C2 103.7	43 161	Y 67872	43-41-10 082-59-40	Y	13.1	69.33	49.0	55.0



CANADIAN ALLOCATION MAP

RADIO STATION WQUS(FM)

LAPEER, MICHIGAN

CH 276A 2.6 KW 104 M

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