

TECHNICAL EXHIBIT
MINOR LICENSE CHANGE APPLICATION
AM STATION WNEL
CAGUAS, PUERTO RICO
FACILITY ID 68355
1430 KHZ 5 KW ND UNLIMITED

Engineering Statement

The technical exhibit of which this narrative is part, has been prepared on behalf of Turabo Radio Corporation, licensee of AM station WNEL, Facility ID 68355, 1430 KHz, Caguas, Puerto Rico, in support of a minor license change request.

WNEL (AM) lost its tower during Hurricane Maria and is currently operating under an engineering STA, File Number BSTA-20180831AAF. The proposed facility, using a slightly shorter tower, under 200 ft. of overall height that does not require registration, will serve well (closely mirroring the license facility) the City of License of WNEL, Caguas, and will afford financial advantages by avoiding the expense of maintaining a lightning system.

WNEL had a CP almost identical to the one herein requested, but for reasons out of its control - exceptional delays in obtaining the local government permits to reconstruct its tower, the CP recently expired. While working the new CP application, it was noted that both the licensed and the expired CP coordinates, which are identical, have some slight errors, which are being corrected in this new CP application. After consultation with the FCC AM Branch Staff, it was concluded that the coordinates error in question, 1.0 arcsecond in latitude and 1.3 arcsecond in longitude, are small enough that it does not require a new allocation and engineering study, as every other parameters and the actual tower location does not change. Thus, except for the coordinates correction, the previous engineering analysis and technical exhibit are being used in this application.

As no site or antenna mode change or increase in operating power is proposed, and the radiation level will be slightly reduced from the licensed Theo RMS of 289.68 mV/m @ 1km @ 1kW to 289.31 mV/m @ 1km @ 1kW, as stated above, no new allocation study seems required. The station proposes to use a shorter tower, 195 ft. high overall, and a 190 ft. (99.5 electrical degrees) radiator at its licensed site, with a power of 5 kW. The licensed ground system (described in Appendix 2, copy on WNEL 1987 license), consisting of 120 radials, 21.94 m to 49.99 m in length, which at 1430 kHz corresponds to 37.68 to 85.84

degrees, with an average length of 61.76 degrees, will be used. The proposed radiating element is series fed and mounted on an insulator.

Proposed Transmitter Location

The facility is located at the existing WNEL site, whose revised and corrected NAD 27 coordinates are:

18° 14' 52.0" North Latitude
66° 01' 23.7" West Longitude

As it is proposed to use the existing station site and ground system, no antenna site plat or transmitter site map is shown.

Figure 1 is a sketch of the proposed tower. As shown in Appendix 1, TOWAIR Study Results, the proposed WNEL tower replacement does not require registration or lightning. Figure 2 shows the proposed electrical parameters. Figure 3 shows the licensed and proposed daytime contours using R2 conductivities; as shown in Figure 3, the licensed daytime coverage will not be exceeded and the COL will be adequately served. Figure 4 is the Nighttime Allocation Protection Report. As shown in Figure 4, the proposed STA facility will not cause any impermissible nighttime interference to any domestic or foreign station. Figure 5 shows the licensed and proposed nighttime contours; as shown in Figure 5, the licensed nighttime coverage will not be exceeded, and the COL will be properly served. As shown in Figure 3 and 5, the daytime and nighttime service contours of WNEL will be unchanged.

Environmental Considerations

The proposed tower is a replacement of the WNEL antenna damaged by Hurricane Maria, located at the license location. As no increase in power or radiation level is proposed, there will be no increase of RF radiation around the tower.

Quiet Zones and FCC Monitoring Stations

As no site change, antenna mode or power increase is proposed, and as noted above the radiation level is being slightly decreased, the Arecibo Observatory, nor the FCC Station at Santa Isabel will be affected and thus, neither facility is being notified.

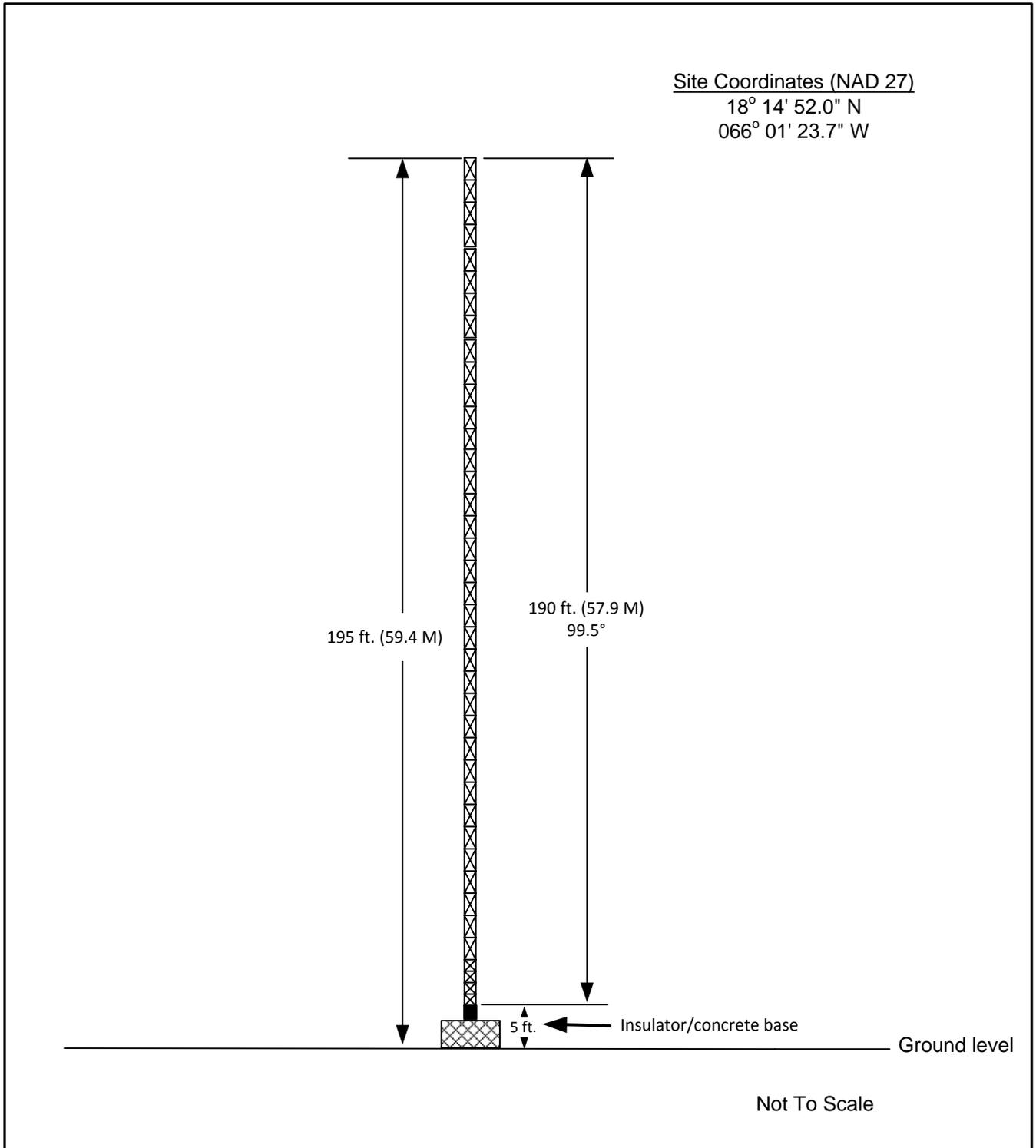
For the reasons stated above, it is believed that grant of the proposed Construction Permit for WNEL (AM) will serve the public interest.

A handwritten signature in black ink, appearing to read "Grafton Olivera". The signature is written in a cursive style with a large initial "G".

Grafton Olivera, P.E.
Consulting Engineer
5119 60th Drive E.
Bradenton, FL 34203

May 12, 2022

Figure 1



SKETCH OF PROPOSED ANTENNA STRUCTURE

**RADIO STATION WNEL
CAGUAS, PUERTO RICO
1430 KHZ 5.0 KW ND UNLIMITED**

Grafton Olivera, P.E. – Consulting Engineer

Proposed and Licensed Operating Parameters

Proposed Facility Station Information:

Call: WNEL-P Freq:

1430 kHz CAGUAS,

PR, US Hours: U

Lat: 18-14-52.0 N

Lng: 066-01-23.7 W

Power: 5.0 kW

Ground System:

Reported: 120 Radials 21.94 m to 49.99 m in length.

At 1430 kHz that is 37.68 to 85.84 degrees.

Average length = 61.76 degrees.

Efficiency Ground System Adjustment:

Radials: 120

Average Ground Radial Length: 61.76 deg

Correction factor for length: -22.53 mV/m @ 1km

Theo RMS: 289.31 mV/m @ 1km @ 1kW

	Field	Phase	Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	(deg)	Swch	Swch	(deg)	(deg)	(deg)	(deg)
1	1.000	0.0	0.0	0.0	99.5	0	0	0.0	0.0	0.0	0.0

Figure 2 (Continued)

License Facility Station Information:

Call: WNEL

Freq: 1430 kHz

CAGUAS, PR, US

Hours: U

Lat: 18-14-52.0 N

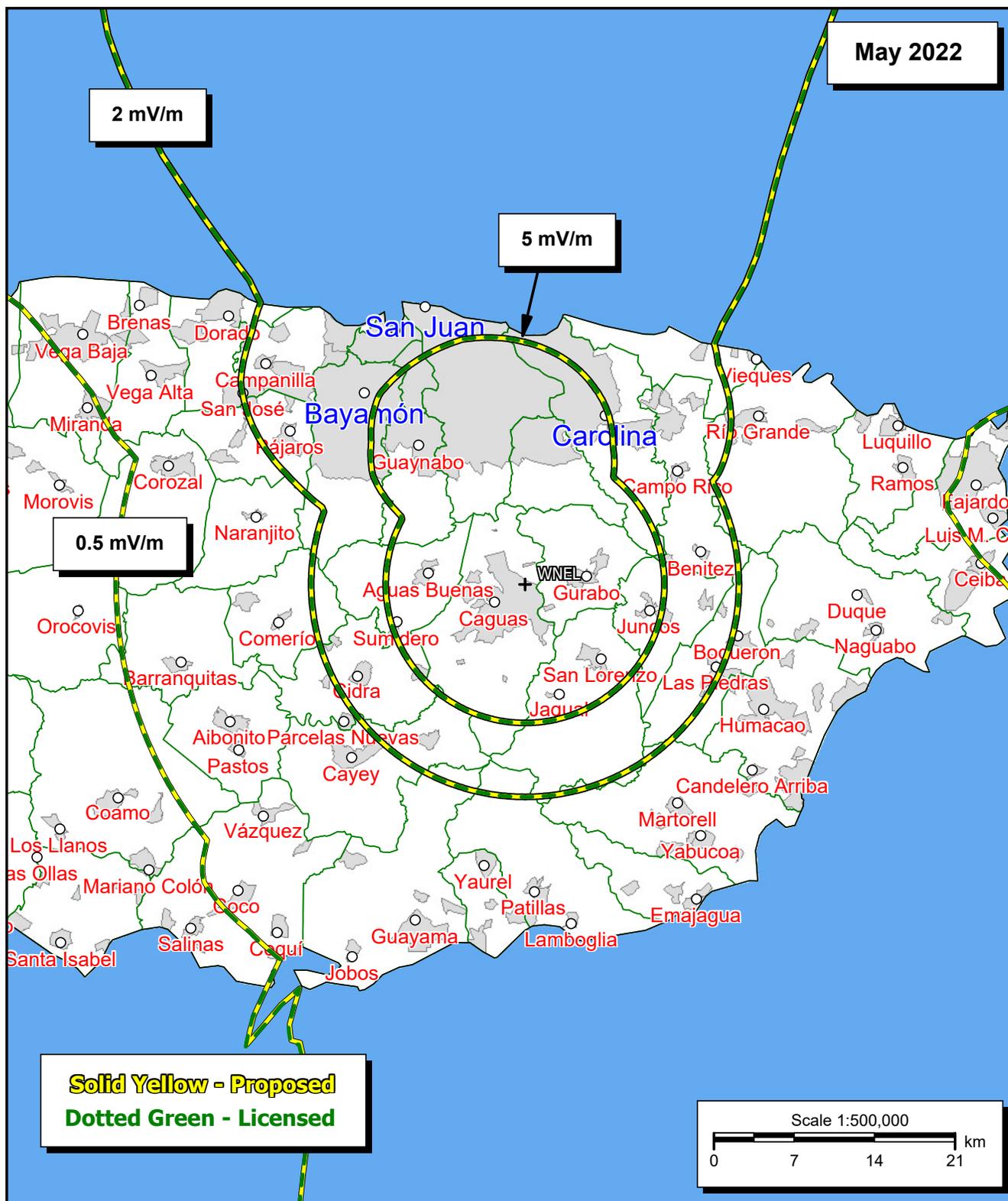
Lng: 066-01-23.7 W

Power: 5.0 kW

Theo RMS: 289.68 mV/m @ 1km @ 1kW

	Field	Phase	Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	(deg)	Swtch	Swtch	(deg)	(deg)	(deg)	(deg)
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1.000	0.0	0.0	0.0	104.7	0	0	0.0	0.0	0.0	0.0

Figure 3



**PROPOSED DAYTIME CONTOUR
WNEL 1430 KHZ 5.0 KW ND UNLIMITED
CAGUAS, PUERTO RICO**

Proposed Nighttime Allocation Report

Night Allocation Protection Report

Call: WNEL-P

Freq: 1430 kHz

CAGUAS, PR, US

Hours: U

Lat: 18-14-52.0 N

Lng: 066-01-23.7 W

Power: 5.0 kW

Number of Ground System Radials: 120 / Average Ground Radial Length: 61.76 deg

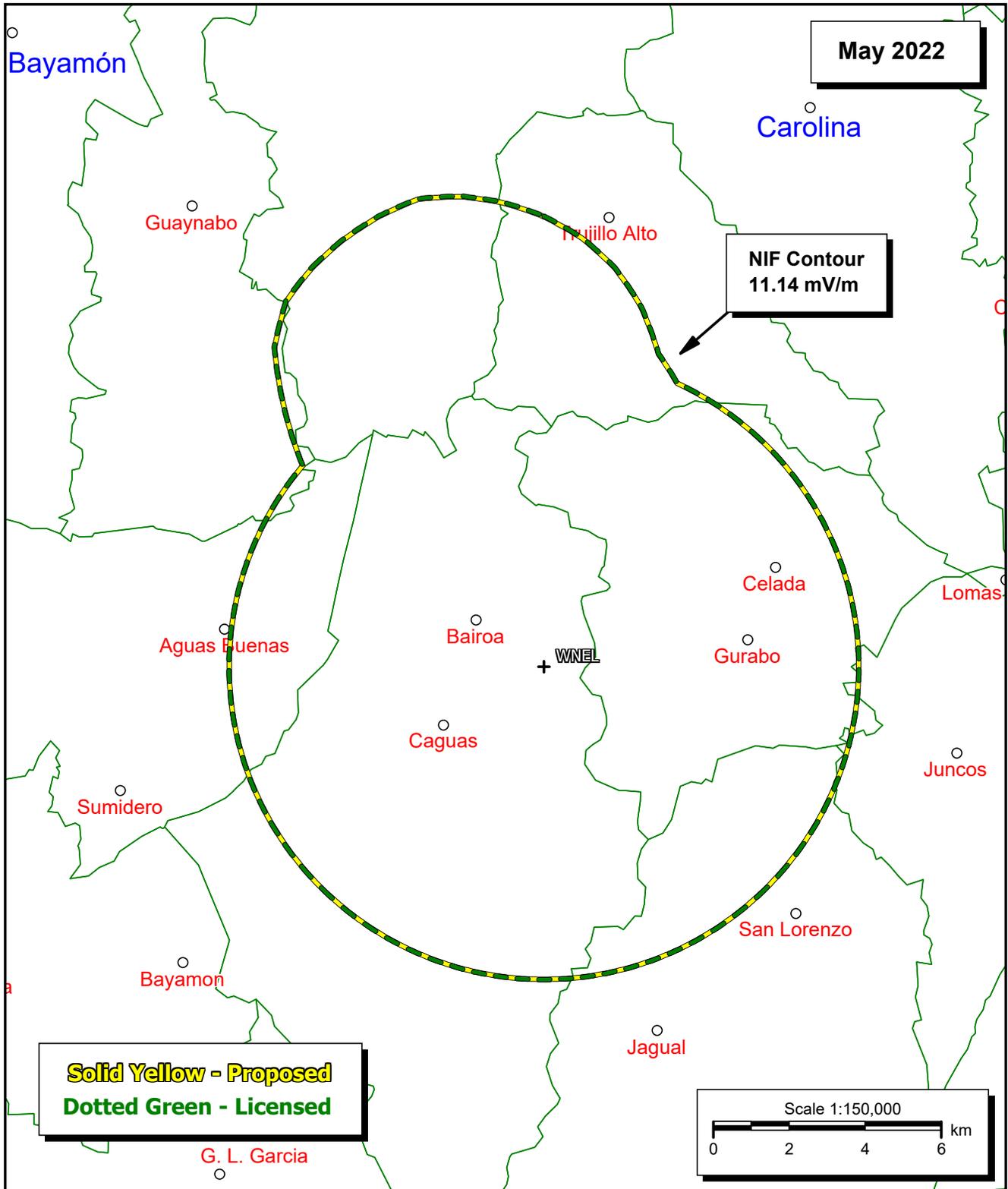
Theo RMS: 289.31 mV/m @ 1km @ 1kW

	Field	Phase Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	Swtch	Swtch	(deg)	(deg)	(deg)	(deg)
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1.000	0.0	0.0	99.5	0	0	0.0	0.0	0.0	0.0

Call		Azi	Ang Low	Ang High	SWFF	Req Prot	Permis	Cur Rad	Margin
Letters	Ct St City	(deg)	(deg)	(deg)	(100uV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)
CMIN.O-D	CU MORON	290.16	4.78	4.78	13.16	1.695	643.97	643.32	0.65
50% = 3.415, 25% = 4.295; WLKF.L=2.25 4VGM.O-A=1.93 WNEL.L=1.69 HJQX.O-A=1.43 HRSJ.O-A=1.42 WOIR.L=1.27 HRIC.O-A=1.07									
WOIR.L	US FL HOMESTEAD	300.74	1.03	4.20	24.61	3.187	647.58	646.76	0.82
50% = 11.256, 25% = 12.737; WLKF.L=11.26 WXNT.L=3.88 KTBZ.L=3.22 WNEL.L=3.19									
WLKF.L	US FL LAKELAND	306.75	0.00	2.56	18.79	2.872	764.47	646.92	117.55
50% = 8.182, 25% = 11.489; WXNT.L=5.40 WOIR.L=4.64 KTBZ.L=4.03 WVAM.L=3.51 KZQZ.L=3.40 WEIR.L=3.37 WNAV.L=3.28 WPLN.L=3.10 WOWW.L=3.08									
WNSW.L	US NJ NEWARK	344.48	0.00	0.00	8.88	1.448	815.45	646.92	168.53
50% = 4.533, 25% = 5.914; CHKT.P/A=4.53 WENE.L=1.96 WNAV.L=1.83 WKOX.L=1.66 WVAM.L=1.54 WDJS.L=1.45									
YVJA.O-B	VE GUACARA	193.59	9.64	9.64	28.81	5.053	876.83	632.65	244.18
50% = 10.106, 25% = 12.116; YVTN.O-A=10.11 HJQX.O-A=4.22 HJKU.O-A=3.68 WNEL.L=3.65									
HIVG.O-C	DR LA VEGA 4	283.67	20.29	20.29	50.34	8.789	872.91	585.52	287.39
50% = 6.744, 25% = 7.569; WNEL.L=5.88 4VGM.O-A=3.31 YVTN.O-A=2.61 HJQX.O-A=2.24									
WUKQ.L	US PR PONCE	245.68	64.07	73.62	465.47	4.825	518.33	220.77	297.56
50% = 16.557, 25% = 19.301; .O-A=16.56 HJAP.O-A=6.04 HIGA.O-C=5.81 HIFD.O-C=5.30									

Call		Azi	Ang Low	Ang High	SWFF	Req Prot	Permis	Cur Rad	Margin
Letters	Ct St City	(deg)	(deg)	(deg)	(100uV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)
YVTN.O-A	VE CAICARA	180.77	6.57	6.57	18.98	3.717	979.34	640.13	339.21
50% = 5.332, 25% = 6.539; HJKU.O-A=3.55 HJQX.O-A=3.09 YVIT.O-A=2.51 WNEL.L=2.43 HJBP.O-A=2.30 HJMF.O-A=1.77									
KTBZ.L	US OK TULSA	310.40	0.00	0.00	5.24	1.092	1041.64	646.92	394.72
50% = 2.889, 25% = 4.401; WXNT.L=1.51 KBTN.L=1.44 XELL.O/A=1.42 WGEM.L=1.41 WOWW.L=1.36 WOC.L=1.35 WLKF.L=1.32 XECOC.O/A=1.27 XE.P/A=1.23 CHKT.O/A=1.13 KSHJ.L=1.09									
4VGM.O-A	HA PT AU PRINCE	273.72	14.53	14.53	41.14	9.237	1122.49	614.83	507.66
50% = 5.802, 25% = 6.607; WNEL.L=5.05 HJQX.O-A=2.85 YVTN.O-A=2.56 HIVG.O-C=1.85									
WXNT.L	US IN INDIANAPOLIS	325.32	0.00	0.00	6.55	1.536	1173.00	646.92	526.08
50% = 4.034, 25% = 6.143; CHKT.O/A=3.45 WOWW.L=2.09 WGFS.L=1.94 WION.L=1.92 KZQZ.L=1.88 WEEF.L=1.67 WLKF.L=1.66 WFOB.L=1.57 WBEV.L=1.56									
KZQZ.L	US MO ST LOUIS	318.99	0.00	0.00	6.00	1.664	1387.24	646.92	740.32
50% = 5.387, 25% = 6.655; WXNT.L=4.53 WOWW.L=2.91 CHKT.P/A=2.14 KTBZ.L=2.03 WYMC.L=1.89 WGFS.L=1.73									
WVAM.L	US PA ALTOONA	337.01	0.00	0.00	8.22	2.305	1402.63	646.92	755.71
50% = 8.713, 25% = 9.221; CHKT.P/A=5.45 WHKZ.L=5.08 WNAV.L=4.52 WENE.L=3.02									

Figure 5



**PROPOSED NIGHTTIME CONTOUR
WNEL 1430 KHZ 5.0 KW ND UNLIMITED
CAGUAS, PUERTO RICO**

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	18-14-44.8 north
Longitude	066-01-22.3 west

Measurements (Meters)

Overall Structure Height (AGL)	59.4
Support Structure Height (AGL)	1.5
Site Elevation (AMSL)	54

Structure Type

GTOWER - Guyed Structure Used for Communication Purposes

Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW

AM BROADCAST STATION LICENSE

Subject to the provisions of the Communications Act of 1934, as amended, subsequent Acts, Treaties, and Commission Rules made thereunder, and further subject to conditions set forth in this license,¹ the LICENSEE

TURABO RADIO CORPORATION

is hereby authorized to use and operate the radio transmitting apparatus hereinafter described for the purpose of broadcasting for the term ending 3 a.m. Local Time **FEBRUARY 1, 1989** in accordance with the following:

- Station location: **Caguas, Puerto Rico**
- Main Studio location: (Listed only if not at transmitter site or not within boundaries of principal community)
- Remote control location:
- Transmitter location: **North Main Street and 24th Street Caguas, PR**
North latitude: **18 ° 14 ' 53 "**
West longitude: **66 ° 01 ' 25 "**
- Transmitter(s): Type Accepted. (See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.)
- Antenna and ground system: **Vertical, guyed, series excited, steel radiator of uniform cross section 60.96 m (0.291 Wavelength) in height (61.87 m Overall). Theoretical Efficiency is 289.7 mV/m/Kw @ 1 km. Ground system consist of 120 buried copper radials 21.94 m to 49.99 m in length. Ground screen is 14.63 m by 14.63 m.**
- Obstruction marking and lighting specifications — FCC Form 715, paragraphs: **1, 3, 11 & 21.**
- Frequency (kHz.): 1430
- Nominal power (kW): 5.0 Day
5.0 Night
- Antenna input power (kW):
5.0 Day
 Non-directional antenna: current 6.84 amperes; resistance 107 ohms.
 Directional antenna : current _____ amperes; resistance _____ ohms.
5.0 Night
 Non-directional antenna: current 6.84 amperes; resistance 107 ohms.
 Directional antenna : current _____ amperes; resistance _____ ohms.
- Hours of operation: Specified in construction permit (BP **-860411AJ**)
- Conditions:

Operation with the facilities specified herein is subject to modification, suspension or termination without right to hearing if found by the Commission to be necessary in order to conform to Final Acts of the ITU Administrative Conference on medium Frequency Broadcasting in Region 2, Rio de Janeiro 1981 and to **bilateral and other ****

The Commission reserves the right during said license period of terminating this license or making effective any change or modification of this license which may be necessary to comply with any decision of the Commission rendered as a result of any hearing held under the rules of the Commission prior to the commencement of this license period or any decision rendered as a result of any such hearing which has been designated but not held, prior to the commencement of this license period.

This license is issued on the licensee's representation that the statements contained in licensee's application are true and that the undertakings therein contained so far as they are consistent herewith, will be carried out in good faith. The licensee shall, during the term of this license, render such broadcasting service as will serve public interest, convenience, or necessity to the full extent of the privileges herein conferred.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency designated in the license beyond the term hereof, nor in any other manner than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. This license is subject to the right of use or control by the Government of the United States conferred by Section 606 of the Communications Act of 1934, as amended.

* * multilateral agreements between the United States and other countries.

¹ This license consists of this page and pages

Dated: **JUN 26 1987**

ajs

FEDERAL COMMUNICATIONS COMMISSION



JUN 29 1987