ENGINEERING EXHIBIT

Application for Digital Television Station Auxiliary Antenna Construction Permit

prepared for

Gray Television Licensee, LLC
KEYU(DT) Borger, TX
Facility ID 83715
Ch. 31 4.6 kW 404 m

Gray Television Licensee, LLC ("Gray") is the licensee of digital television station KEYU(DT), Facility ID 83715, Channel 31, Borger TX. KEYU is licensed (file# BLCDT-20130815AAW) to operate with a directional antenna at 700 kW effective radiated power (ERP) and 305 meters height above average terrain (HAAT). A minor modification Construction Permit ("CP" file# 0000205939) authorizes KEYU to relocate 5.9 km from the licensed site and to increase antenna height to 430 meters HAAT. *Gray* herein seeks authorization for an auxiliary antenna for KEYU. The proposed auxiliary antenna will operate at 4.6 kW ERP nondirectional and an antenna HAAT of 404 meters.

Gray proposes to utilize a shared antenna with KXTC-LD (Ch. 35, Fac ID 183926, Amarillo TX, file# 0000212548) as the KEYU auxiliary facility. The shared antenna will be side-mounted on the same structure as that specified in the KEYU main facility CP. The subject tower structure is associated with FCC Antenna Structure Registration number 1052115. No change to the overall structure height will result from this proposal.

The proposed auxiliary antenna is a nondirectional Dielectric model TLP-16A/VP-R having elliptical polarization. The proposed ERP is 4.6 kW horizontally polarized and 0.46 kW vertically polarized.

Figure 1 shows that the 41 dBμ noise limited service contour of the proposed auxiliary facility does not extend beyond those of the licensed or authorized main facility. Thus, the proposal complies with §73.1675(a).

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

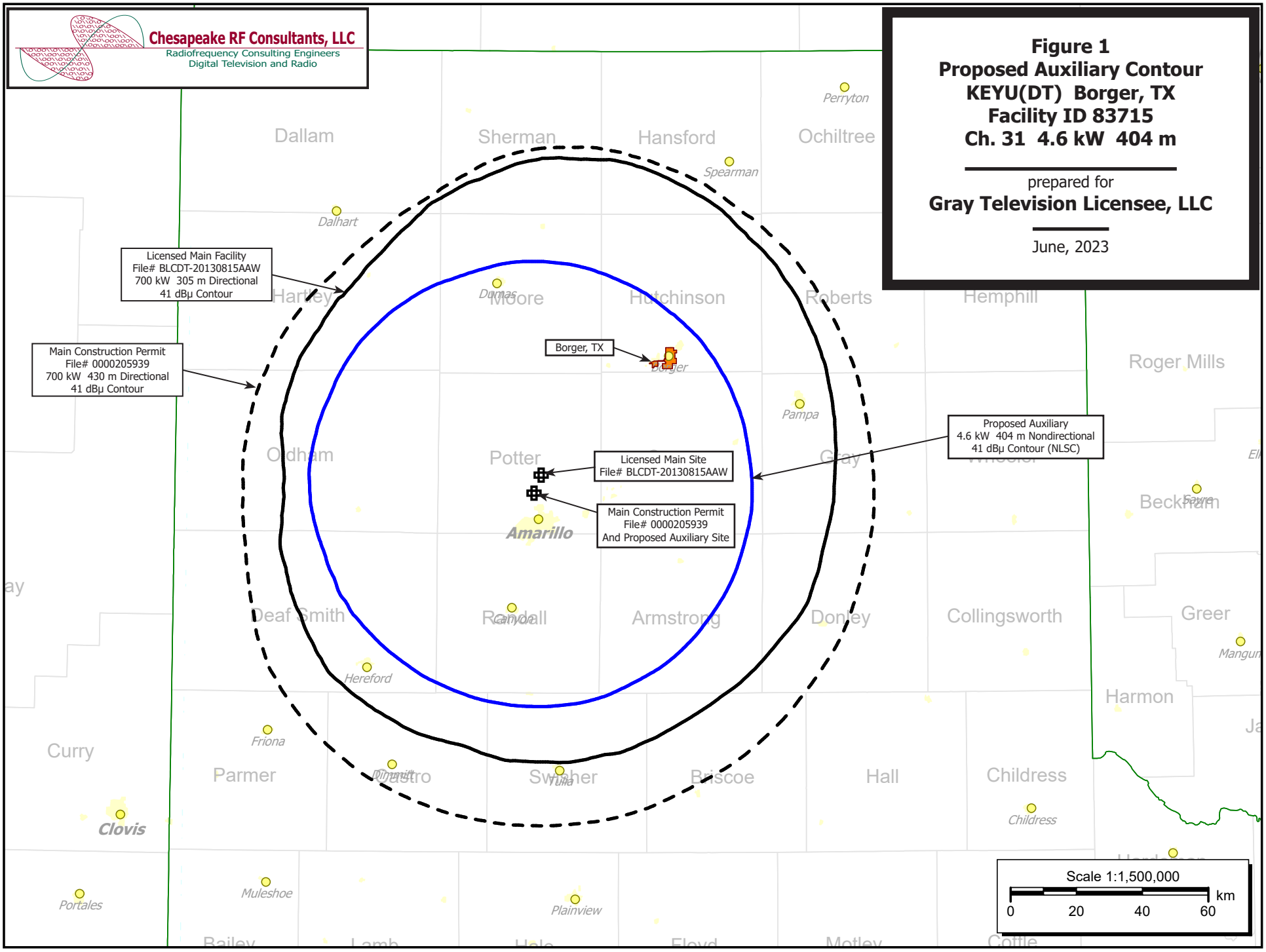
The proposed facility was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and 20 percent antenna relative field in downward elevations (pattern data shows 20 percent or less relative field at angles 20 to 90 degrees below the antenna), the calculated power density attributable to the proposed facility at locations near the transmitter site at a height of two meters above ground level is 0.05 $\mu W/cm^2$, which is 0.01 percent of the general population / uncontrolled maximum permissible exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

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 will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations 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. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

List of Attachments

Figure 1 Proposed Auxiliary Contour
Form 2100 Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC
Joseph M. Davis, P.E. June 6, 2023
207 Old Dominion Road Yorktown, VA 23692 703-650-9600


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 1
Proposed Auxiliary Contour
KEYU(DT) Borger, TX
Facility ID 83715
Ch. 31 4.6 kW 404 m
prepared for
Gray Television Licensee, LLC
June, 2023
Licensed Main Facility
File# BLCDT-20130815AAW
700 kW 305 m Directional
41 dBµ Contour
Main Construction Permit
File# 0000205939
700 kW 430 m Directional
41 dBµ Contour
Borger, TX
Proposed Auxiliary
4.6 kW 404 m Nondirectional
41 dBµ Contour (NLSC)
Licensed Main Site
File# BLCDT-20130815AAW
Main Construction Permit
File# 0000205939
And Proposed Auxiliary Site
Amarillo
Clovis
Scale 1:1,500,000
km
0
20
40
60

Channel and Facility Information

Section	Question	Response
Proposed Community of License	Facility ID	83715
	State	Texas
	City	BORGER
	DTX Channel	31
	Designated Market Area	Amarillo
Facility Type	Facility Type	Commercial
	Station Type	Auxiliary
Zone	Zone	2

Antenna Location Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1052115
Coordinates (NAD83)	Latitude	35° 17' 34.0" N+
	Longitude	101° 50' 44.0" W-
	Structure Type	GTOWER-Guyed Structure Used for Communication Purposes
	Overall Structure Height	456.0 meters
	Support Structure Height	427.0 meters
	Ground Elevation (AMSL)	1082.3 meters
Antenna Data	Height of Radiation Center Above Ground Level	381.0 meters
	Height of Radiation Center Above Average Terrain	403.5 meters
	Height of Radiation Center Above Mean Sea Level	1463.3 meters
	Effective Radiated Power	4.6 kW

Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Non-Directional
	Do you have an Antenna ID?	
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	TLP-16A/VP-R
	Rotation	
	Electrical Beam Tilt	1.0
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	