ENGINEERING EXHIBIT

Application for Digital Television Station Construction Permit

prepared for

Gray Television Licensee, LLC
KNOE-TV Monroe, LA
Facility ID 48975
Ch. 8 34.2 kW 579 m

Gray Television Licensee, LLC ("Gray") is the licensee of digital television station KNOE-TV, Channel 8, Facility ID 48975, Monroe LA. KNOE-TV is licensed (file# BLCDT-20090223ABC) to operate with 22.3 kW effective radiated power ("ERP") nondirectional at 576 meters antenna height above average terrain ("HAAT"). *Gray* proposes herein to increase the ERP to 34.2 kW and update the HAAT to 579 meters.[1]

KNOE-TV will continue to employ its presently licensed antenna system which is top-mounted on the tower structure associated with FCC Antenna Structure Registration number 1040625. No change to overall structure height will result from this proposal.

Figure 1 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community. The proposed facility's predicted population exceeds 95 percent of the baseline facility's population as described in the *Incentive Auction Closing and Channel Reassignment Public Notice* (*"CCRPN"*, DA 17-317, released April 13, 2017).

The proposed facility expands the KNOE-TV service contour beyond that established by the *CCRPN*. Interference study per FCC OET Bulletin 69[2] shows that the proposal complies with

[1]The antenna height above ground and above mean sea level are unchanged from licensed values. The antenna HAAT is recalculated to be 578.8 meters, based on FCC 30 meter terrain data developed by OET.

[2]FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 2 km cell size, and 0.2 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCCs implementation of TVStudy show excellent correlation.

the 0.5 percent limit of new interference caused to pertinent nearby full service and Class A television stations as required by §73.616. **FCC processing of this proposal is requested using a 2.0 km cell size and 0.2 km terrain profile increment.** The interference study output report is provided as Table 1.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

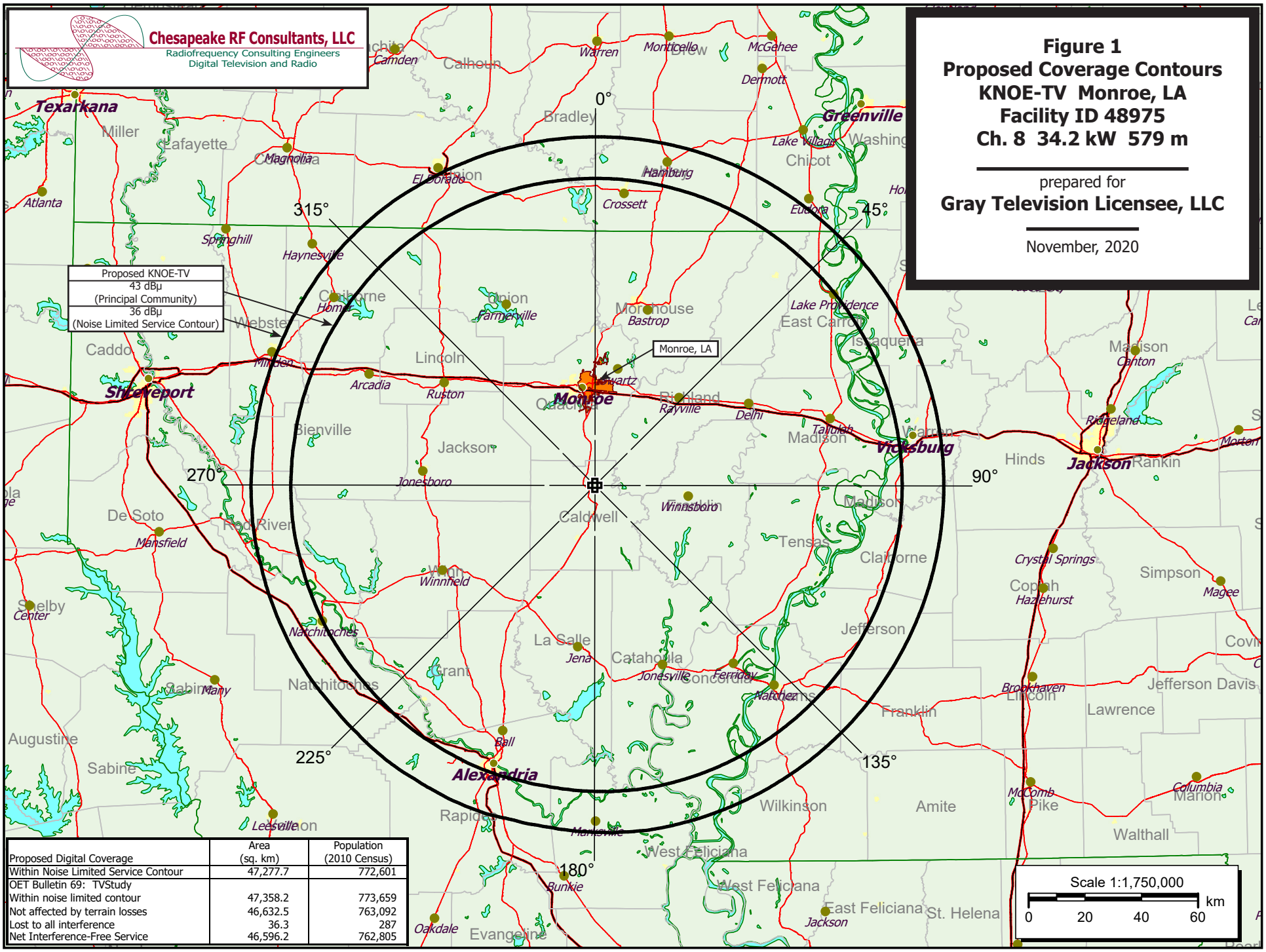
The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 20 percent antenna relative field in downward elevations, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 0.13 $\mu W/cm^2$, which is 0.07 percent of the general population/uncontrolled maximum permitted 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.

List of Attachments

Figure 1	Proposed Coverage Contours
Table 1	TVStudy Analysis of Proposal
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

Chesapeake RF Consultants, LLC
Joseph M. Davis, P.E. November 26, 2020
207 Old Dominion Road Yorktown, VA 23692 703-650-9600



Proposed Digital Coverage	Area (sq. km)	Population (2010 Census)
Within Noise Limited Service Contour	47,277.7	772,601
OET Bulletin 69: TVStudy		
Within noise limited contour	47,358.2	773,659
Not affected by terrain losses	46,632.5	763,092
Lost to all interference	36.3	287
Net Interference-Free Service	46,596.2	762,805

Table 1 KNOE-TV TVStudy Analysis of Proposal


```
tvstudy v2.2.5 (4uoc83)
Database: localhost,  Study: KNOE-TV  34.2kW 2.0-0.2,  Model: Longley-Rice
Start: 2020.11.26 15:38:15

Study created: 2020.11.26 15:38:15

Study build station data: LMS TV 2020-11-26

    Proposal: KNOE-TV D8 DT APP MONROE, LA
 File number: KNOE-TV  34.2kW
 Facility ID: 48975
Station data: User record
   Record ID: 3353
     Country: U.S.
        Zone: II

Search options:
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX   Call      Chan       Svc Status  City, State              File Number            Distance
No   KETS      D7         DT  LIC     LITTLE ROCK, AR          BLEDT20090615ABT       249.8 km
No   KPLC      D7         DT  LIC     LAKE CHARLES, LA         BLCDT20091202ABY       218.8
No   WDAM-TV   D7         DT  LIC     LAUREL, MS               BLCDT20100129ABY       275.8
No   KAIT      D8         DT  CP      JONESBORO, AR            BLANK0000035662        423.5
No   KAIT      D8         DT  LIC     JONESBORO, AR            BLCDT20090803ABV       423.5
Yes  WMAB-TV   D8         DT  CP      MISSISSIPPI STATE, MS    BLANK0000026611        301.7
No   WFAA      D8         DT  LIC     DALLAS, TX               BLANK0000116834        462.6
No   KUHT      D8         DT  CP      HOUSTON, TX              BLANK0000063824        439.1
No   KUHT      D8         DT  LIC     HOUSTON, TX              BLEDT20110718ACN       437.7
No   WAFB      D9         DT  LIC     BATON ROUGE, LA          BLCDT20090622AAU       219.2
No   KTRE      D9         DT  LIC     LUFKIN, TX               BLCDT20110613ABY       272.0

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D8
   Latitude:  32 11 51.00 N (NAD83)
  Longitude:  92  4 14.00 W
Height AMSL: 604.3 m
       HAAT: 578.8 m
   Peak ERP: 34.2 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
  Elec Tilt: 0.80

36.0 dBu contour:
Azimuth      ERP       HAAT   Distance
  0.0 deg   34.2 kW   585.8 m  123.3 km
 45.0       34.2      585.7    123.2
 90.0       34.2      586.7    123.3
135.0       34.2      587.3    123.4
180.0       34.2      577.3    122.6
225.0       34.2      561.5    121.4
270.0       34.2      564.1    121.6
315.0       34.2      582.0    123.0

Distance to Canadian border: 1337.0 km

Distance to Mexican border: 836.7 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 72.9 degrees   Distance: 709.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 310.5 degrees   Distance: 1470.0 km
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Table 1 KNOE-TV TVStudy Analysis of Proposal

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Study cell size: 2.00 km
Profile point spacing: 0.20 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to BLANK0000026611 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WMAB-TV	D8	DT	CP	MISSISSIPPI STATE, MS	BLANK0000026611	
Undesireds:	KNOE-TV	D8	DT	BL	MONROE, LA	DTVBL48975	301.7 km
	KNOE-TV	D8	DT	APP	MONROE, LA	KNOE-TV 34.2kW	301.7
	WSFA	D8	DT	LIC	MONTGOMERY, AL	BLANK0000124224	318.8
	KAIT	D8	DT	CP	JONESBORO, AR	BLANK0000035662	325.7
	WMAE-TV	D9	DT	LIC	BOONEVILLE, MS	BLANK0000117125	150.5

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
28480.1	417,822	27694.3	406,941	27184.8	402,192	27052.7	401,528	0.49	0.17

Undesired	Total IX		Unique IX, before		Unique IX, after	
KNOE-TV D8 DT BL	220.5	2,377	196.4	2,213		
KNOE-TV D8 DT APP	360.7	3,160			328.5	2,877
WSFA D8 DT LIC	220.7	999	216.7	990	216.7	990
KAIT D8 DT CP	88.3	1,504	68.2	1,349	60.2	1,230
WMAE-TV D9 DT LIC	4.0	33	4.0	33	4.0	33

Interference to BLANK0000026611 CP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WMAB-TV	D8	DT	CP	MISSISSIPPI STATE, MS	BLANK0000026611	
Undesireds:	KNOE-TV	D8	DT	BL	MONROE, LA	DTVBL48975	301.7 km
	KNOE-TV	D8	DT	APP	MONROE, LA	KNOE-TV 34.2kW	301.7
	WSFA	D8	DT	LIC	MONTGOMERY, AL	BLANK0000124224	318.8
	KAIT	D8	DT	LIC	JONESBORO, AR	BLCDT20090803ABV	325.7
	WMAE-TV	D9	DT	LIC	BOONEVILLE, MS	BLANK0000117125	150.5

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
28480.1	417,822	27694.3	406,941	27192.9	402,268	27060.7	401,604	0.49	0.17

Undesired	Total IX		Unique IX, before		Unique IX, after	
KNOE-TV D8 DT BL	220.5	2,377	208.4	2,368		
KNOE-TV D8 DT APP	360.7	3,160			340.6	3,032
WSFA D8 DT LIC	220.7	999	216.7	990	216.7	990
KAIT D8 DT LIC	68.2	1,273	60.2	1,273	52.1	1,154
WMAE-TV D9 DT LIC	4.0	33	4.0	33	4.0	33

Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KNOE-TV	D8	DT	APP	MONROE, LA	KNOE-TV 34.2kW	
Undesireds:	WMAB-TV	D8	DT	CP	MISSISSIPPI STATE, MS	BLANK0000026611	301.7 km

Service area		Terrain-limited		IX-free		Percent IX	
47358.2	773,659	46632.5	763,092	46596.2	762,805	0.08	0.04

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WMAB-TV D8 DT CP	36.4	287	36.4	287	0.08	0.04

Channel and Facility Information

Section	Question	Response
Proposed Community of License	Facility ID	48975
	State	Louisiana
	City	MONROE
	DTV Channel	8
	Designated Market Area	MONROE-EL DORADO
Facility Type	Facility Type	Commercial
	Station Type	Main
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	1040625
Coordinates (NAD83)	Latitude	32° 11' 51.0" N+
	Longitude	092° 04' 14.0" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	604.7 meters
	Support Structure Height	563.3 meters
	Ground Elevation (AMSL)	19.3 meters
Antenna Data	Height of Radiation Center Above Ground Level	585 meters
	Height of Radiation Center Above Average Terrain	578.8 meters
	Height of Radiation Center Above Mean Sea Level	604.3 meters
	Effective Radiated Power	34.2 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	TW-18A-8R
	Rotation	
	Electrical Beam Tilt	0.8
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Horizontal
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	

Construction Permit Certifications

Section	Question	Response
Post-Incentive Auction Expedited Processing	It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.	Yes
	It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.	No
	It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.	Yes
	The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	Yes
Environmental Effect	Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See 47 C.F.R. Section 1.1306)	No
Broadcast Facility	The proposed facility complies with the applicable engineering standards and assignment requirements of 47 C.F.R. Sections 73.616, 73.622(i), 73.623(e), 73.625, 73.1030, and 73.1125.	Yes