

## **ENGINEERING EXHIBIT**

### **Application for Flash-Cut Construction Permit**

prepared for

#### **Gray Television Licensee, LLC**

K43FX O'Neill, NE

Facility ID 7887

Ch. 43 (digital) 2.2 kW

*Gray Television Licensee, LLC* (“Gray”) is the licensee of Television Translator station K43FX, Channel 43, O’Neill, NE, Facility ID 7887 (BLTT-20020327AAF). *Gray* proposes herein to “flash cut” K43FX to digital operation at its licensed site location.

The proposed facility will operate on its current Channel 43 using a “simple” out of channel emission mask. Continued use of the licensed nondirectional antenna is proposed. **Figure 1** depicts the 51 dB $\mu$  coverage contour of the proposed facility as well as the 74 dB $\mu$  contour of the licensed analog operation. The use of the same transmitter site and the service area overlap shown demonstrates compliance with §73.3572 for a minor change.

The K43FX Channel 43 antenna is situated on a tower structure having FCC Antenna Structure Registration (“ASR”) number 1041789. No change to the overall structure height and no tower work are required to carry out this proposal.

A detailed interference study per OET Bulletin 69<sup>1</sup> shows that the proposal complies with the Commission’s interference protection requirements toward all NTSC, DTV, television translator, LPTV, and Class A stations. The results, summarized in **Table 1**, show that any new interference

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<sup>1</sup>FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 (“OET-69”). The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. A cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission’s implementation of OET-69 show excellent correlation.

does not exceed the Commission's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations).

The nearest FCC monitoring station is 170 km distant at Grand Island, NE. This exceeds the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with "quiet" zones specified in §73.1030(a) and (b). There are no AM stations within 3.2 kilometers of the site, based on information contained within the Commission's database. The site location is beyond the border areas requiring international coordination.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposal will involve use of an existing transmitting antenna. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. No tower construction or change in structure height is proposed. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. Based on OET-65 equation (10), and considering the worst-case 100 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  $6.9 \mu\text{W}/\text{cm}^2$ , which is 1.6 percent of the general population/uncontrolled maximum permitted exposure ("MPE") 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.

### **Certification**

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



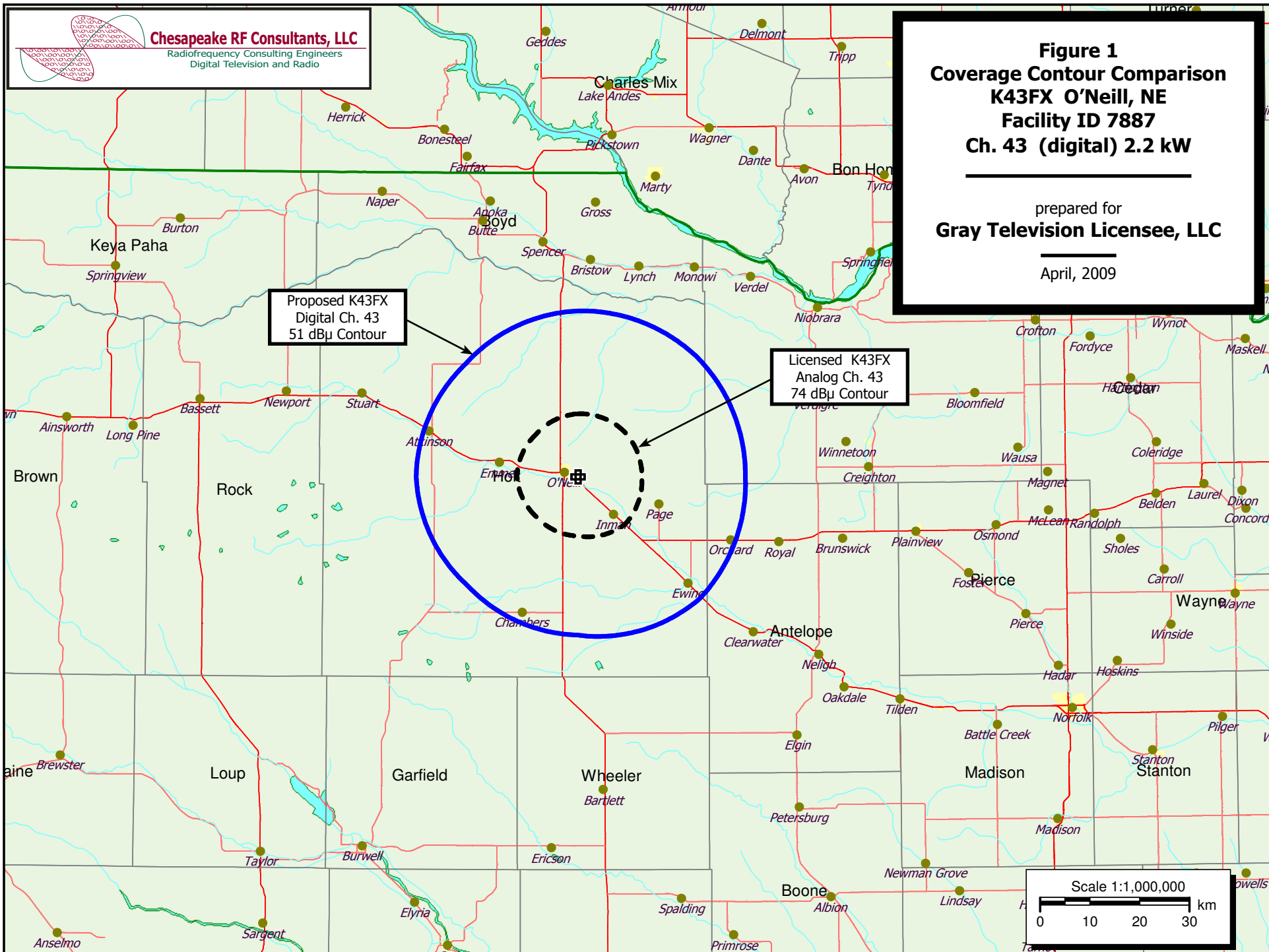
Joseph M. Davis, P.E.  
April 17, 2009

**Chesapeake RF Consultants, LLC**  
11993 Kahns Road  
Manassas, VA 20112  
703-650-9600

### List of Attachments

Figure 1	Coverage Contour Comparison
Table 1	Interference Analysis Results Summary
Form 346	Saved Version of Engineering Sections from FCC Form at Time of Upload

*This material was entered April 17, 2009 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's name and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.*



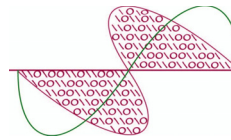
**Table 1**

**Interference Analysis Results Summary**

prepared for

**Gray Television Licensee, LLC**

**K43FX O'Neill, NE**



**Chesapeake RF Consultants, LLC**

Radiofrequency Consulting Engineers  
Digital Television and Radio

Ch.	Call	City/State	Dist	Status	Application Ref. No.	---Population (1990 Census)---	
			(km)			Baseline	New Interference
35	K35FM	NORFOLK NE	113.6	CP MOD	BMPPTT-20071002AAV	---	none
40	K40HB	NELIGH, ETC. NE	65.7	LIC	BLTT-20060106ABY	---	none
42	KAUN-LP	SIOUX FALLS SD	194.2	LIC	BLTTL-19880527II	---	none
43	K43JJ	HAXTUN CO	393.1	LIC	BLTT-20050128APN	---	none
43	K43JM	HAYS KS	397.0	CP	BNPTT-20000831AGI	---	none
43	K43JG	JACKSON MN	321.0	CP	BNPTTL-20000831BSD	---	none
43	K43JE-D	LAKE CRYSTAL MN	399.8	CP	BNPTTL-20000830BJV	---	none
43	K43JE-D	LAKE CRYSTAL MN	392.0	LIC	BLDTL-20071205AAT	---	none
43	KRWF	REDWOOD FALLS MN	338.5	LIC	BLCT-19870424KH	---	none
43	KPTP-LD	NORFOLK NE	114.9	CP	BDCCDTL-20061030ASN	---	none
43	KPTM	OMAHA NE	250.4	LIC	BLCDT-20051107AFO	---	none
43	KPTM	OMAHA NE	250.4	APP	BMPCDT-20040609AAB	1,107,782	2 (0.00%)
43	KAZS-LD	SOUTH SIOUX CITY NE	179.8	CP	BDCCDTL-20061030ASP	---	none
43	K43JW	ABERDEEN SD	335.7	CP	BNPTTL-20000828AYV	---	none
43	K43GX	MADISON SD	204.0	LIC	BLTT-20011101AAE	---	none
43	K43KX-D	WATERTOWN SD	295.1	CP	BDCCDTT-20061027AAC	---	none
44	KPTH	SIOUX CITY IA	196.6	LIC	BLCT-19991105AAH	---	none
44	K28FS	COLUMBUS, ETC NE	183.5	LIC	BLTTL-19950807JS	---	none
44	KCWS-LP	SIOUX FALLS SD	194.2	LIC	BLTTL-19901218JK	---	none
46	KAZJ-LP	NORFOLK NE	114.9	LIC	BLTTL-20050204ABA	---	none
51	K51CC	O'NEILL NE	1.0	LIC	BLTT-19880204IR	---	none

SECTION III - ENGINEERING DATA (Digital)												
<b>TECHNICAL SPECIFICATIONS</b> Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.												
<b>TECH BOX</b>												
1.	Channel Number: 43											
2.	Translator Input Channel No. : 32											
3.	Primary station proposed to be rebroadcast:											
	Facility Identifier	Call Sign	City	State	Channel							
	7890	KOLN-DT	LINCOLN	NE	10							
4.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 42 Minutes 27 Seconds 00 <input checked="" type="radio"/> North <input type="radio"/> South  Longitude: Degrees 98 Minutes 36 Seconds 52 <input checked="" type="radio"/> West <input type="radio"/> East											
5.	Antenna Structure Registration Number: 1041789 <input type="checkbox"/> Not Applicable [Exhibit 10] <input type="checkbox"/> Notification filed with FAA											
6.	Antenna Location Site Elevation Above Mean Sea Level: 599.5 meters											
7.	Overall Tower Height Above Ground Level: 111.5 meters											
8.	Height of Radiation Center Above Ground Level: 105 meters											
9.	Maximum Effective Radiated Power (ERP): 2.2 kW											
10.	Transmitter Output Power: 0.2 kW											
11.	a. Transmitting Antenna: Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under <a href="http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm">CDBS Public Access</a> (http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search. <input checked="" type="radio"/> Nondirectional <input type="radio"/> Directional "Off-the-shelf" <input type="radio"/> Directional composite  Manufacturer SCA Model SL-8  b. Electrical Beam Tilt: 1.75 degrees <input type="checkbox"/> Not Applicable											
	c. Directional Antenna Relative Field Values: <input checked="" type="checkbox"/> N/A (Nondirectional or Directional "Off-the-shelf") Rotation (Degrees): <input type="checkbox"/> No Rotation											
	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
	0		10		20		30		40		50	
	60		70		80		90		100		110	
	120		130		140		150		160		170	
	180		190		200		210		220		230	
	240		250		260		270		280		290	
	300		310		320		330		340		350	
	Additional Azimuths											
<a href="#">Relative Field Polar Plot</a>												
	<b>NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.</b>											
12.	Out-of-channel Emission Mask: <input checked="" type="radio"/> Simple <input type="radio"/> Stringent											
<b>CERTIFICATION</b>												
13.	Interference : The proposed facility complies with all of the following applicable rule sections. 47.C.F.R Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030.										<input checked="" type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 11]	
14.	Environmental Protection Act. The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an <b>Exhibit is required</b> .  By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.										<input checked="" type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 12]	
15.	Channels 52-59. If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable:											

<input type="checkbox"/>	The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available.
<input type="checkbox"/>	Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.
16.	<b>Channels 60-69.</b> If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable:  <input type="checkbox"/> Pursuant to Section 74.786(e), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.  <input type="checkbox"/> Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreements(s) with 700 MHz public safety regional planning committee(s) and state administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location.  <input type="checkbox"/> Pursuant to Section 74.786(e), the applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site.
<b>PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.</b>	

### SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.		Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature		Date 4/17/2009	
Mailing Address CHESAPEAKE RF CONSULTANTS LLC 11993 KAHNS ROAD			
City MANASSAS	State or Country (if foreign address) VA		Zip Code 20112 -
Telephone Number (include area code) 7036509600	E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM		

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).