

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of RAPID BROADCASTING COMPANY, licensee of analog Low Power Television Station KWBH-LP, Channel 27 in Rapid City, South Dakota, in support of a digital flashcut Application for Construction Permit. No change in site location, antenna azimuth pattern, or antenna height is proposed herein.

It is proposed to utilize the licensed KWBH-LP omnidirectional slotted cylinder antenna, which is mounted at the 75.3-meter level of an existing 163.1-meter tower. The proposed effective radiated power for the facility is 2.6 kW in the horizontal plane. Exhibit B is a map upon which the predicted 51 dBu service contour is plotted.

Attached, as Exhibit C, is a summary report from a TVStudy interference analysis for the proposed facility. Our study employed both a cell size and increment spacing of 1.0 kilometer. The results indicate that the proposed digital KWBH-LD facility meets the Commission's interference requirements to all full-power and low-power co-channel and adjacent-channel facilities.

A detailed power density calculation is provided in Exhibit D.

Since no change in the overall height or location of the existing KWBH-LP supporting structure is proposed herein, the FAA has not been notified of this application. In addition, the FCC issued Antenna Structure Registration Number 1048502 to this tower.

I declare under penalty of perjury that the foregoing statements and the attached exhibits are true and correct to the best of my knowledge and belief.

A handwritten signature in blue ink, appearing to read 'K. T. Fisher', is written over the printed name.

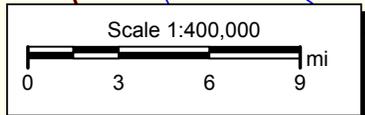
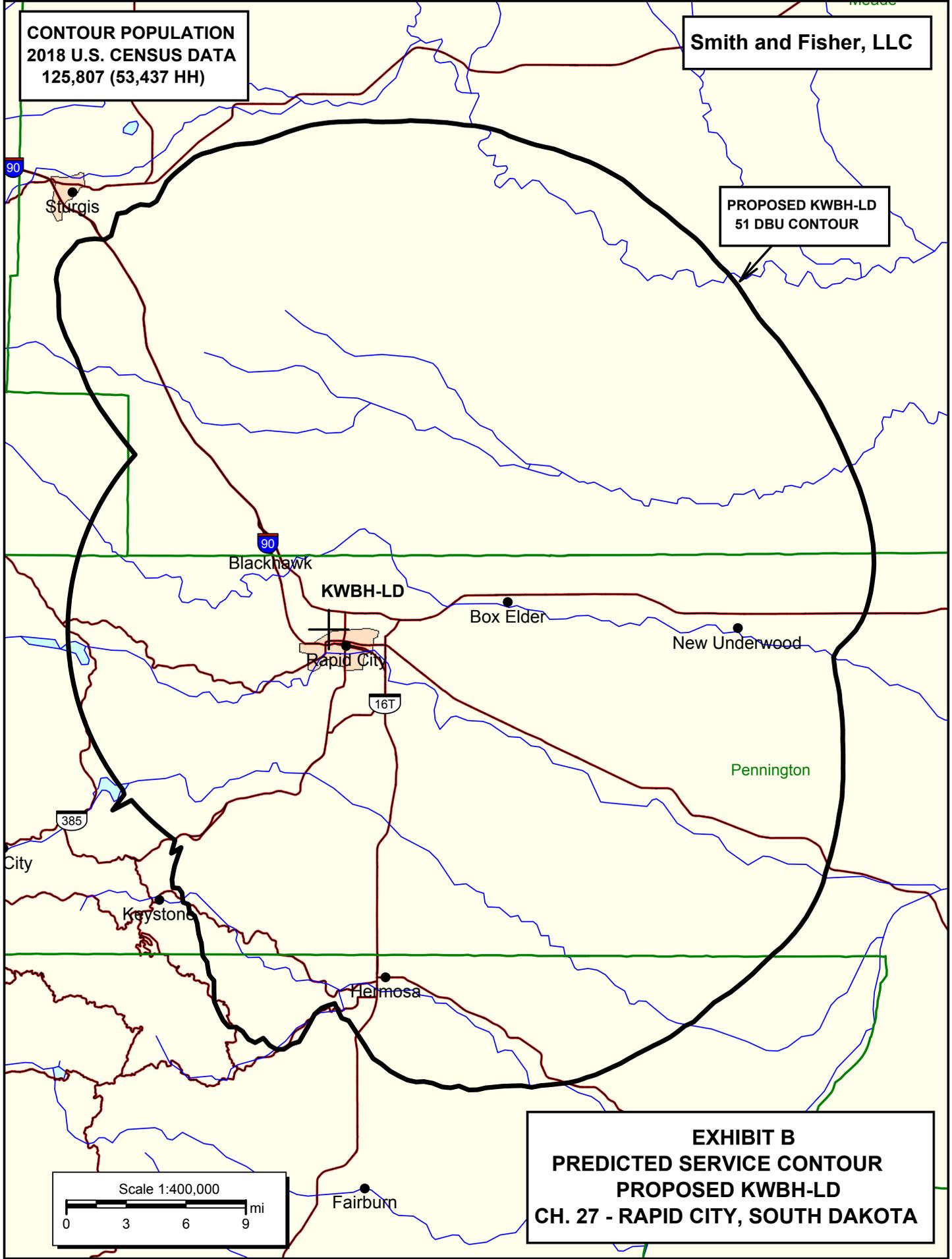
March 5, 2021

KEVIN T. FISHER

**CONTOUR POPULATION
2018 U.S. CENSUS DATA
125,807 (53,437 HH)**

Smith and Fisher, LLC

**PROPOSED KWBH-LD
51 DBU CONTOUR**



**EXHIBIT B
PREDICTED SERVICE CONTOUR
PROPOSED KWBH-LD
CH. 27 - RAPID CITY, SOUTH DAKOTA**

SMITH AND FISHER

EXHIBIT C

TVSTUDY INTERFERENCE ANALYSIS RESULTS PROPOSED KWBH-LD CHANNEL 27 – RAPID CITY, SOUTH DAKOTA

Study created: 2021.03.05 14:48:37

Study build station data: LMS TV 2021-01-18
Proposal: KWBH-LP D27 LD APP RAPID CITY, SD
File number: BLTTL19970801JA
Facility ID: 66654
Station data: User record
Record ID: 978
Country: U.S.

Build options:
Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KKRA-LP	N24		TX LIC	RAPID CITY, SD	BLTTL19980213JB	0.0 km
No	K26MO-D	D26		LD CP	KADOKA, SD	BNPDTL20100510AHV	164.5
Yes	KBHE-TV	D26		DT LIC	RAPID CITY, SD	BLEDT20081121AKE	4.5
No	K27KY-D	D27		LD CP	STERLING, CO	BLANK0000068912	390.5
No	K27LT-D	D27		LD LIC	BAKER, MT	BLDTT20120227AAE	257.9
No	K27KZ-D	D27		LD CP	HEBRON, ND	BNPDTL20100506ABX	318.0
No	KHGI-CD	D27		DC LIC	NORTH PLATTE, NE	BLANK0000114628	381.4
No	K27HJ-D	D27-		LD LIC	PIERRE, SD	BLANK0000021590	232.0
No	K27HJ-D	N27-		TX LIC	PIERRE, SD	BLTT20031008ACB	232.0
No	KWYF-LD	D27		LD LIC	CASPER, WY	BLDTT20120615ACV	292.7
No	KLWY	D27		DT LIC	CHEYENNE, WY	BLCDT20090227AAD	363.9
No	K27LC-D	D27		LD CP	MIDWEST, WY	BNPDTL20100510ACR	274.8
No	K27LJ-D	D27		LD CP	MOORCROFT, WY	BNPDTL20100505AIK	120.3
No	K28MI-D	D28		LD CP	STURGIS, SD	BNPDTL20100505AIU	42.6
No	K28NI-D	D28		LD CP	WASTA, SD	BNPDTL20100510AHL	69.6
No	K28KM-D	D28		LD LIC	CLARETON, WY	BLDTL20091106ABM	154.7

No non-directional AM stations found within 0.8 km
No directional AM stations found within 3.2 km

Record parameters as studied:

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Channel: D27
Mask: Full Service
Latitude: 44 5 33.00 N (NAD83)
Longitude: 103 14 55.00 W
Height AMSL: 1221.3 m
HAAT: 0.0 m
Peak ERP: 2.60 kW
Antenna: Omnidirectional
Elev Pattn: Generic

50.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	2.60 kW	202.0 m	42.0 km
45.0	2.60	244.2	44.3
90.0	2.60	230.8	43.6
135.0	2.60	245.2	44.4
180.0	2.60	73.2	31.6
225.0	2.60	20.4	22.3
270.0	2.60	-48.2	22.3
315.0	2.60	55.4	28.7

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 128 m

Distance to Canadian border: 545.4 km
Distance to Mexican border: 1397.7 km

Conditions at FCC monitoring station: Grand Island NE
Bearing: 130.1 degrees Distance: 529.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 201.1 degrees Distance: 467.2 km

Study cell size: 1.00 km
Profile point spacing: 1.00 km

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

No IX check failures found.

POWER DENSITY CALCULATION

PROPOSED KWBH-LD
CHANNEL 27 – RAPID CITY, SOUTH DAKOTA

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Rapid City facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 2.6 kW, an antenna radiation center 75.3 meters above ground, and assuming a maximum relative field value of 40 percent at the steeper elevation angles for the licensed Antenna Concepts ACS32E antenna, a maximum power density value two meters above ground of 0.0026 mW/cm² is calculated to occur near the base of the tower. Since this is only 0.7 percent of the 0.37 mW/cm² reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 27 (548-554 MHz), a grant of this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive non-ionizing radiation.