

## ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of CHRISTIAN BROADCASTING OF YAKIMA, licensee of Low Power Television Station K39DM, Channel 39 in Ellensburg, Washington, in support of this Application for minor modification to Construction Permit BDISTDTL-20090824AKU to assign a new antenna pattern. No changes to the station's effective radiated power, transmitter site or radiation center above ground level are proposed herein.

It is proposed to mount a standard ERI omnidirectional antenna at the authorized height on the side of the existing 12-meter communications tower. Exhibit B is a map upon which the predicted service contours are plotted. It is important to note that the proposed 51 dBu contour encompasses the station's city of license. Operating parameters for the proposed facility are tabulated in Exhibit C. An interference study is provided in Exhibit D, and a power density calculation follows as Exhibit E.

Because no change in the overall height or location of the existing tower is proposed, the FAA has not been notified of this application. Due to the diminutive height of the tower and its proximity to the nearest airport runway, FCC antenna structure registration is not required. This conclusion is supported by the Commission's TOWAIR Program.

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.



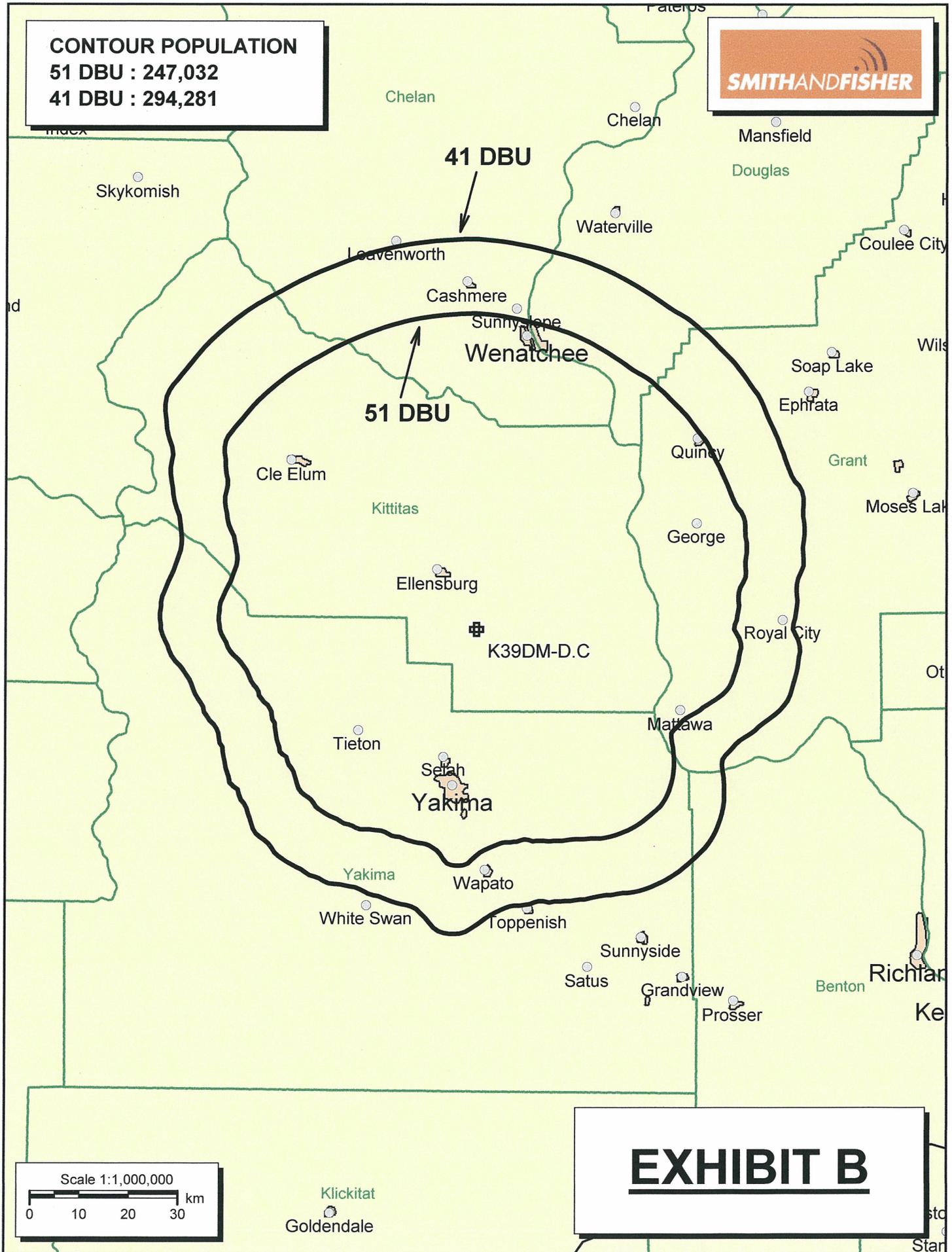
KYLE T. FISHER

March 23, 2011

**CONTOUR POPULATION**

**51 DBU : 247,032**

**41 DBU : 294,281**



**EXHIBIT B**

## PROPOSED OPERATING PARAMETERS

PROPOSED K39DM-D  
CHANNEL 44 – ELLENSBURG, WASHINGTON  
[MODIFICATION OF BDISTDTL-20090824AKU]

Transmitter Power Output:	0.81 kw
Transmission Line Efficiency:	93.8%
Antenna Power Gain – Toward Horizon:	19.7
Antenna Power Gain – Main Lobe:	19.7
Effective Radiated Power – Toward Horizon:	15.0 kw
Effective Radiated Power – Main Lobe:	15.0 kw
Transmitter Make and Model:	Type-accepted
Transmission Line Make and Model:	Andrew HJ7-50A
Size and Type:	1-5/8" air heliax
Length:	50 feet*
Antenna Make and Model:	ERI ALP12L2-HSOC
Orientation	0 degrees true
Beam Tilt	0.5 degrees
Radiation Center Above Ground:	9.75 meters
Radiation Center Above Mean Sea Level:	987 meters

\*estimated

LONGLEY-RICE INTERFERENCE STUDIES  
PROPOSED K39DM-D  
CHANNEL 44 – ELLENSBURG, WASHINGTON  
[MODIFICATION OF BDISTDTL-20090824AKU]

We conducted detailed interference studies using the Longley-Rice methodology contained in the Commission's *OET Bulletin No. 69*, with respect to all facilities of concern. The software utilizes a 1-square kilometer cell size, calculates signal strength at 1.0 kilometer increments along each radial studied, and employs the 2000 U.S. Census to count population within cells. In addition, the program does not attribute interference to the proposed facility in cells within the protected contour of the station under study where interference from another source (other than proposed K39DM-D) already is predicted to exist (also known as "masking"). The results of these studies are provided in Exhibit D-2. They conclude that the facility proposed herein causes no significant new interference to any of the potentially affected stations.

As a result, it is believed that the proposed K39DM-D facility complies with the requirements of Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030 of the Commission's Rules.

## INTERFERENCE SUMMARY

PROPOSED K39DM-D  
CHANNEL 44 – ELLENSBURG, WASHINGTON  
[MODIFICATION OF BDISTDTL-20090824AKU]

<u>Call Sign</u>	<u>Status</u>	<u>City, State</u>	<u>Ch.</u>	<u>Longley-Rice Service Population</u>	<u>Unmasked Interference From Proposed Facility</u>	<u>%</u>
KVEW-DT BLCDT-20090326ACW	Lic.	Kennewick, WA	44	377,525	300	0.1

## POWER DENSITY CALCULATION

PROPOSED K39DM-D  
CHANNEL 44 – ELLENSBURG, WASHINGTON  
[MODIFICATION OF BDISTDTL-20090824AKU]

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Ellensburg facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 15.0 kw, an antenna radiation center 10 meters above ground, and the vertical pattern of the ERI antenna, maximum power density two meters above ground of  $0.32 \text{ mw/cm}^2$  is calculated to occur 2 meters north of the base of the tower. Since this is 14.5 percent of the  $2.2 \text{ mw/cm}^2$  reference for controlled environments (areas without public access) surrounding a facility operating on Channel 44 (650-656 MHz), and since the site is secure from unauthorized access, a grant of this proposal may be considered a minor environmental action with respect to public and occupational exposure to ground-level nonionizing 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 nonionizing radiation.