



**EXHIBIT #1**  
**ENGINEERING STATEMENT**

Concerning the Application of  
Nebraska Educational Telecommunications Commission  
To  
Reduce the Antenna Height  
Of Station KXNE-DT, Norfolk, Nebraska  
BPEDT-20000414AAN

August 13, 2003

**Channel 16**

**200 kW (H)**

This engineering statement supports the application filed by the Nebraska Educational Telecommunications Commission to reduce the antenna height of station KXNE-DT, Norfolk, Nebraska. A reduction in antenna height is necessary due to the consolidation of FM and TV antennas on a new tower having the same geographic coordinates as the old tower. The applicant will also lower the maximum structure height of the registered tower to 308.8 meters above ground level. (The applicant has notified the FAA of the change and has modified the tower registration.) Under this proposal the antenna height will be reduced from 302.6 meters above ground to 225.6 meters above ground. A type approved transmitter delivers its output to the existing authorized Andrew ALP 32HSOC-16H antenna that radiates a total main-lobe (tilted) power of 200 kilowatts, polarized horizontally. This antenna has .75 degree beam-tilt.

**Coverage Map**

Attached to this exhibit as page #3 is an updated coverage map showing the proposed population and area served. The political boundaries of Norfolk, the city of licensee, continue to remain fully encompassed by the 41 (and 48) dBu city service contour. The coverage map was computer generated using the U.S.G.S. World digital geographic data. The N.G.D.C. 30 arc-second digital terrain database and 360 evenly spaced terrain elevation radials were used to project the 41 and 48 dBu F(50-90) signal contours. The area within the 41 dBu contour is shown on the map along with the population. The population was determined through the use of a computer program which extracts a population count based on block level population centroids defined by U.S. Census 2000 (SF1) digital census data.

Eight evenly spaced radials were used to determine the antenna height above average

terrain. The computer program uses radial elevations at 0.1 kilometer increments from 3.2 to 16.1 kilometers. The elevation points were averaged using the required four-point interpolation method and then the average was employed to project antenna heights above average terrain and the consequent distances to signal contours along the pertinent radials. (See a tabular listing of these contour distances on page #4 of this exhibit.)

**Allocation Study:**

An allocation study has not been included because the applicant proposes only to lower the antenna; ERP and geographic coordinates will remain the same.

**R.F. Hazard compliance:**

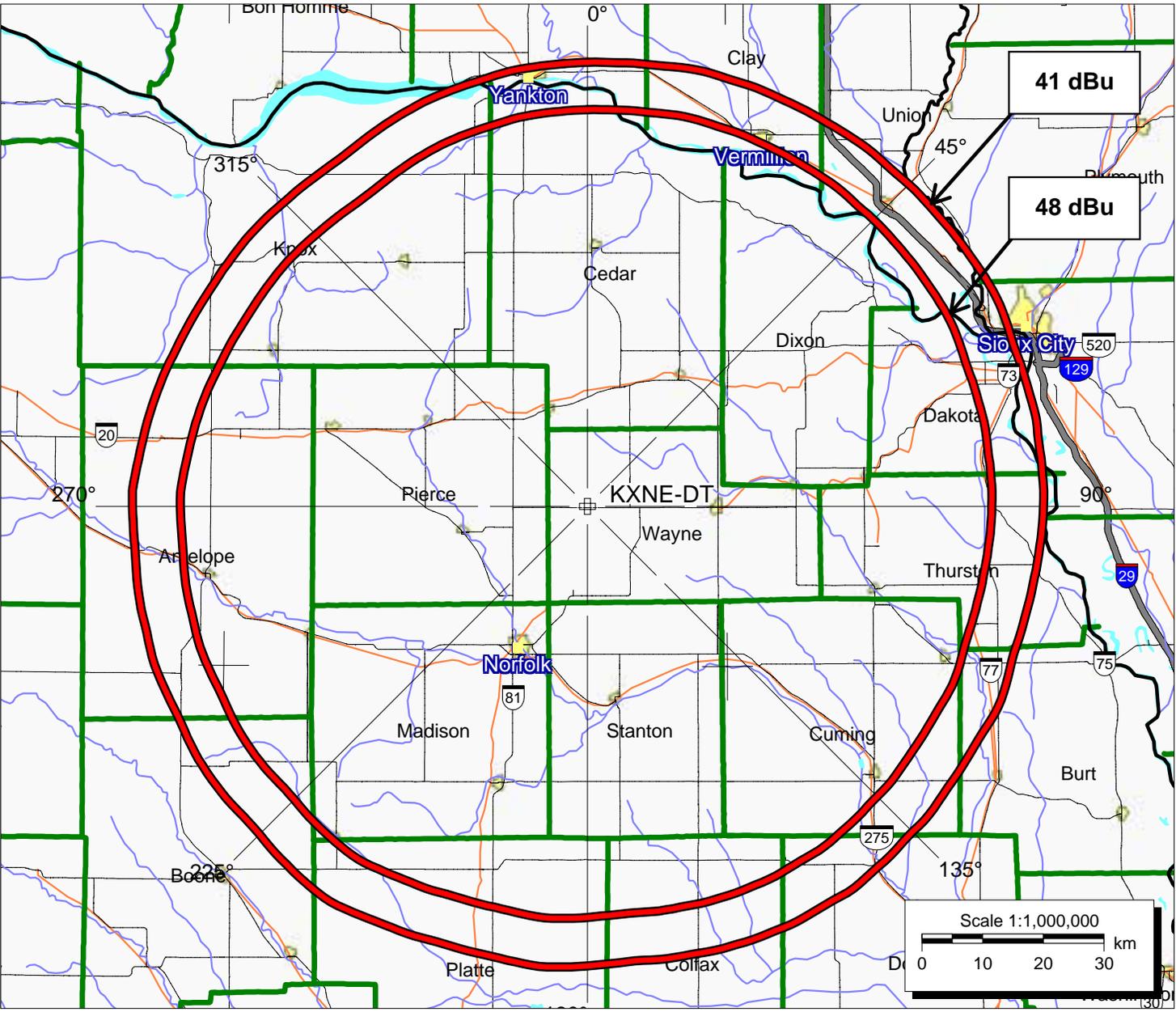
Exhibit #31 shows compliance with the Commission's R.F. radiation standards.

Page #5 of this Engineering Statement is a declaration made by the preparer, Doug Vernier, attesting to his qualifications.

# DTV Service Contours

**KXNE-DT (CP)**  
 BPEDT20000414AAN  
 Latitude: 42-14-15 N  
 Longitude: 097-16-41 W  
 ERP: 200.00 kW  
 Channel: 16  
 Frequency: 485.0 MHz  
 AMSL Height: 770 m  
 Elevation: 544.4.0 m  
 Horiz. Pattern: Directional  
 Prop Model: FCC

41 dBu:  
 Population: 161,518  
 Area: 17,444 sq. km



Doug Vernier, Telecommunications Consultants  
 N. Lat. = 42 14 15 W. Lng. = 97 16 41  
 HAAT and Distance to Contour - FCC Method - 30 Arc Sec.

Nebraska Educational Telecommunications Commission							
Azi.	AV EL	HAAT	ERP kW	dBk	Field	41-F9	48-F9
000	515.5	254.5	123.6535	20.92	0.786	75.09	67.10
045	497.7	272.3	66.4474	18.22	0.576	73.27	65.23
090	483.2	286.8	57.0526	17.56	0.534	73.68	65.36
135	501.4	268.6	67.6517	18.30	0.582	73.05	65.10
180	536.2	233.8	127.1375	21.04	0.797	73.67	65.94
225	532.0	238.0	187.1726	22.72	0.967	76.04	68.00
270	524.4	245.6	199.9600	23.01	1.000	77.02	68.80
315	544.0	226.0	185.7050	22.69	0.964	75.09	67.20

-----  
 Additional Radials (Not Considered in Average):

207	530.1	239.9	169.8693	22.30	0.922	75.66	67.67
-----	-------	-------	----------	-------	-------	-------	-------

Ave El = 516.80 M HAAT= 253.20 M AMSL= 770 M

**Declaration:**

I, Douglas L. Vernier, declare that I have received training as an engineer from the University of Michigan School of Engineering. That, I have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 30 years;

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464;

That, I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Re-certified 10/2000.)

That, my qualifications are a matter of record with the Federal Communications Commission;

That, I have been retained by the Nebraska Educational Telecommunications Commission, Lincoln, Nebraska to prepare the engineering showings appended hereto:

That, I have prepared these broadcast engineering showings, the technical information contained in same and the facts stated within are true of my knowledge;

That, under penalty of perjury, I declare that the foregoing is correct.



\_\_\_\_\_  
Douglas L. Vernier

Executed on August 14, 2003