

ENGINEERING STATEMENT  
TRANSLATOR APPLICATION  
K16DH, MILES CITY, MONTANA  
CHANNEL 16 15.06 KW (MAX) 826 METERS R/C AMSL  
NEXSTAR BROADCASTING, INC.

APRIL 2004

COHEN, DIPPELL AND EVERIST, P.C.  
CONSULTING ENGINEERS  
RADIO AND TELEVISION  
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington            )  
  ) ss  
District of Columbia         )

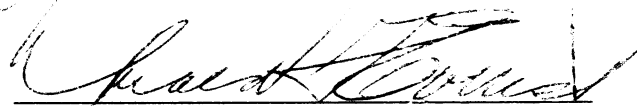
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

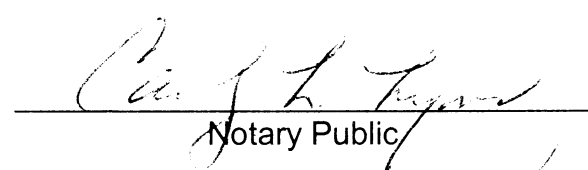
That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.



Donald G. Everist  
District of Columbia  
Professional Engineer  
Registration No. 5714

Subscribed and sworn to before me this 15<sup>th</sup> day of April, 2004.



Notary Public

My Commission Expires: 2/25/2008

COHEN, DIPPELL AND EVERIST, P. C.


City of Washington                    )  
  ) ss  
District of Columbia                )

Daryl Mastracci, being duly sworn upon his oath, deposes and states that:

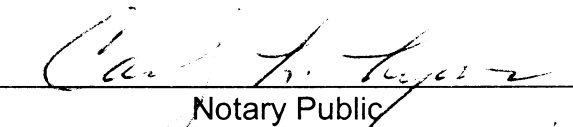
He is a graduate electrical engineer of the Pennsylvania State University, and is a staff engineer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

  
Daryl Mastracci  
District of Columbia

Subscribed and sworn to before me this 15<sup>th</sup> day of April, 2004.

  
Notary Public

My Commission Expires: 2/25/2005

This engineering statement has been prepared on behalf of Nexstar Broadcasting, Inc., licensee of translator K16DH, Miles City, Montana, and is in support of its application requesting modification of its operations on channel 16. This application is being filed in response to a FCC letter dated March 18, 2004, which requires that a complete FCC Form 346 be filed. Currently K16DH is operating with the parameters herein under special temporary authority.

K16DH is authorized to operate on channel 16 with a maximum ERP of 15.06 kW under the STA. It is proposed to operate from the site specified in the STA on channel 16 (no offset) with a maximum ERP of 15.06 kW, using an Andrew, Type ALP8-HSE directional antenna, oriented at an azimuth of N 141° E, true. The proposed channel 16, F(50,50) normally protected 74 dBu contour will duplicate the current 74 dBu contour of the STA.

#### Transmitter Site

The proposed operation will remain on the same tower as the current facilities authorized by the STA. The transmitting tower is located at the coordinates below and is designated by FCC Tower Registration No. 1213896. The tower is located approximately 1.0 mile north of Miles City, Montana.

The geographic coordinates of the site are as follows:

North Latitude: 46° 26' 08"

West Longitude: 105° 50' 53"

NAD-27

Since no change in site is proposed, the 7.5 minute USGS topographical map is not being resubmitted, nor considered necessary. Exhibit E-1 provides a tower sketch for the proposed facility.

Elevation Data

Elevation of site above mean sea level	798.6 meters (2620.1 feet)
Center of radiation of antenna above ground level	27.4 meters (90 feet)
Center of radiation of antenna above mean sea level	826.0 meters (2710.1 feet)
Overall tower height above ground level	30.5 meters (100 feet)
Overall tower height above mean sea level	829.1 meters (2720.1 feet)

Equipment Data

Transmitter:	ADC, Type 832A, 1 kW
Antenna:	Andrew, Type ALP8-HSE pattern or equivalent, directed at N 141° E (see Exhibit E-2)
Transmission Line:	Cablewave, Type HCC 158-50J, 100 feet (30.48 meters) in length

Power Data

Transmitter power output	1.0 kW	0.0 dBk
Transmission line loss	0.11 kW	0.48 dBk
Antenna input power	0.89 kW	-0.48 dBk
Antenna gain	16.83	12.26 dBd
Maximum Effective Radiated Power	15.06 kW	11.78 dBk

### Allocation Situation

An allocation study has not been performed since the March 18, 2004 letter indicates compliance with the FCC allocation rules is achieved.

### Unattended Operation

The permittee will comply with the requirements of Section 74.734 of the FCC Rules concerning unattended operation for the translators transmitter. A qualified person is designated to suspend operation of the translator station should this be deemed necessary.

### Environmental Statement

The proposed operation of K16DH is a minor environmental action under Section 1.1305(d) of the FCC Rules since the predicted power density at 2 meters above ground level for a downward radiation factor of 0.26 is  $26.36 \mu\text{W}/\text{cm}^2$ , based on the methods contained in the FCC OET Bulletin 65 (Edition 97-01), in compliance with permissible levels for both controlled and uncontrolled environments. With respect to work performed near the radiating elements, the licensee indicates it now complies and will comply with FCC guidelines by reducing power or by ceasing operation, in order that workers are not exposed to power density levels above those prescribed by the FCC.

An evaluation of the Radio Frequency Field level ("RFF") around the base of the tower has been completed with information from the Commission's Consolidated Database System (CDBS) dated April 15, 2004. A search of the database for TV transmitters operating within 100 meters of the tower returned the proposed K16DH and K19FF, which are combined into the Andrew ALP8-HSE antenna. An RFF level analysis for the existing TV transmitters has been included below.

Station

K16DH	Channel 16
K19FF	Channel 19

The RF radiation contribution of each station will be calculated using the following formula:

$$S = \frac{33.4(F^2) \text{ Total ERP}}{R^2}$$

where:

S = power density in  $\mu\text{W}/\text{cm}^2$

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

ERP =  $[0.4 \text{ ERP}_V + \text{ERP}_A]$  for NTSC Stations

$\text{ERP}_V$  = peak visual ERP in watts

$\text{ERP}_A$  = RMS aural ERP in watts

**K16DH NTSC Facility**

Channel 16	Freq:	482-488 MHz range
	ERP =	(0.4) [15.06 watts (visual)]+[1.506 watts (aural)]
	Polarization =	Horizontal
	RCAGL -2 meters =	25.4 meters

$$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2} \quad \text{Tot ERP} = 7,530 \text{ watts (Horizontal Only)}$$

R = 25.4 meters

F = 0.26 (from manufacturer's data)

$$S = 26.36 \mu\text{W}/\text{cm}^2$$

K16DH contributes  $26.36 \mu\text{W}/\text{cm}^2$  at 2 meters above ground.

The limit for an uncontrolled environment for a station broadcasting on this frequency is  $323.33 \mu\text{W}/\text{cm}^2$ .

**Therefore, K16DH contributes less than 8.2% RFR for an uncontrolled environment two meters above ground at tower site.**

### **K19FF NTSC Facility**

Channel 19	Freq:	500-506 MHz range
	ERP =	(0.4) [15.06 watts (visual)]+[1.506 watts (aural)]
	Polarization =	Horizontal
	RCAGL -2 meters =	25.4 meters

$$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2} \quad \text{Tot ERP} = 7,530 \text{ watts (Horizontal Only)}$$

$$R = 25.4 \text{ meters}$$

$$F = 0.26 \text{ (from manufacturer's data)}$$

$$S = 26.36 \mu\text{W}/\text{cm}^2$$

K19FF contributes  $26.36 \mu\text{W}/\text{cm}^2$  at 2 meters above ground.

The limit for an uncontrolled environment for a station broadcasting on this frequency is  $335.33 \mu\text{W}/\text{cm}^2$ .

**Therefore, K19FF contributes less than 7.9% RFR for an uncontrolled environment two meters above ground at tower site.**

### **Total RFR at Site**

The total RFR contribution for all transmitters can now be calculated:

$$\text{Total RFR} = 52.72 \mu\text{W}/\text{cm}^2 \text{ (TV) RFR}$$

$$\text{Total RFR} = 8.2\% + 7.9\% \quad \textbf{Total RFR = 16.1\%}$$



The total RFF existing around the base of the tower is less than 17% of the uncontrolled exposure limit. This calculated, predicted level is well within the limits set forth in OET Bulletin 65.

The proposed operation based upon the current OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A meets the provisions of the FCC radio frequency field guidelines, and thus, complies with Section 1.1307 of the FCC Rules.

For reasons stated above, this proposal does not involve any action specified in Section 1.1307 (a) and (b) of the FCC Rules; therefore, under Section 1.1306, it is categorically excluded from the environmental processing.

ABOVE GROUND

ABOVE MEAN SEA LEVEL

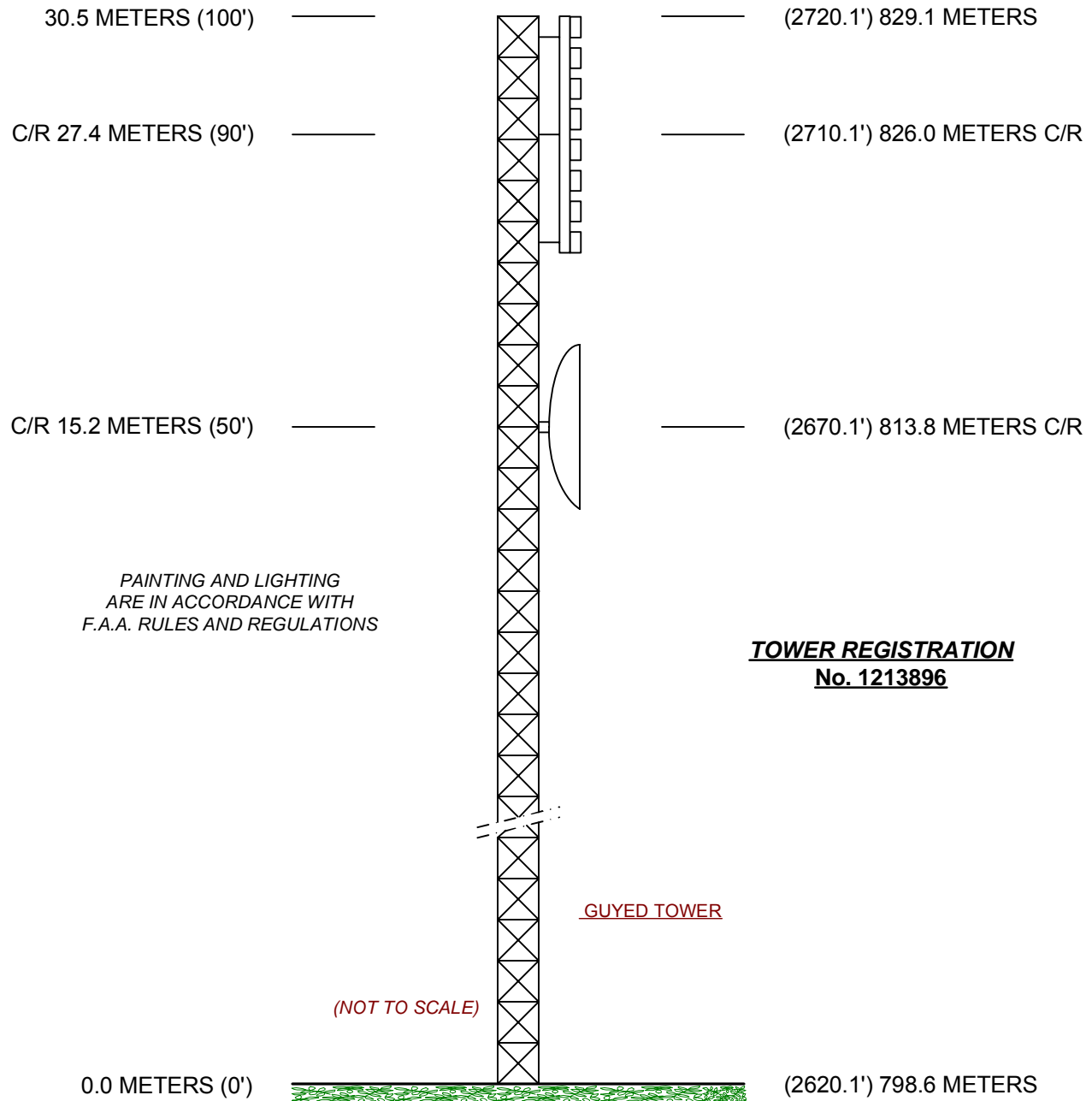
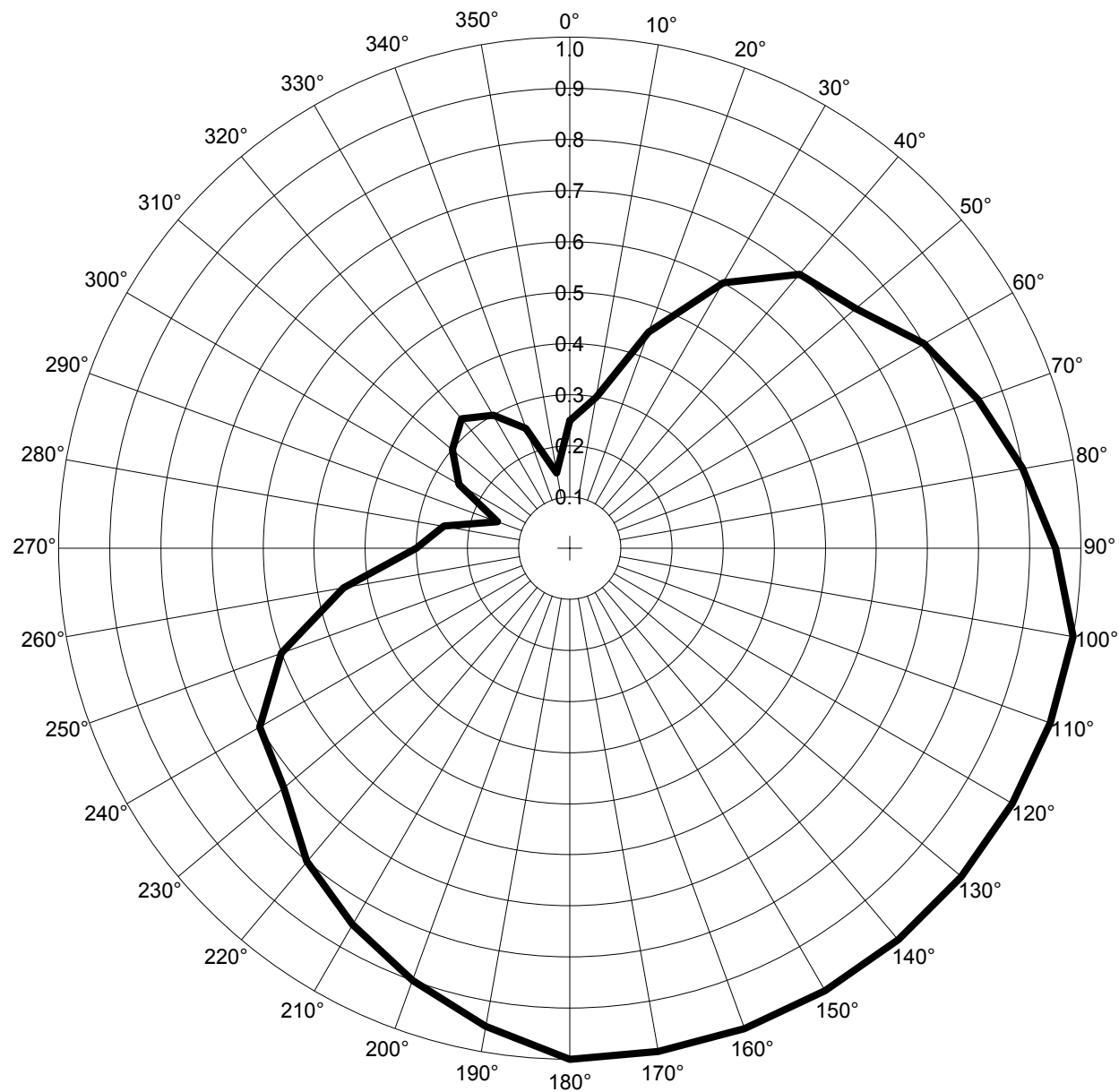


EXHIBIT E - 1  
VERTICAL SKETCH  
FOR THE PROPOSED OPERATION OF  
**K16DH, MILES CITY, MONTANA**  
CHANNEL 16 15.06 kW MAX 826 METERS R/C AMSL  
APRIL 2004

COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.

# HORIZONTAL PLANE PATTERN

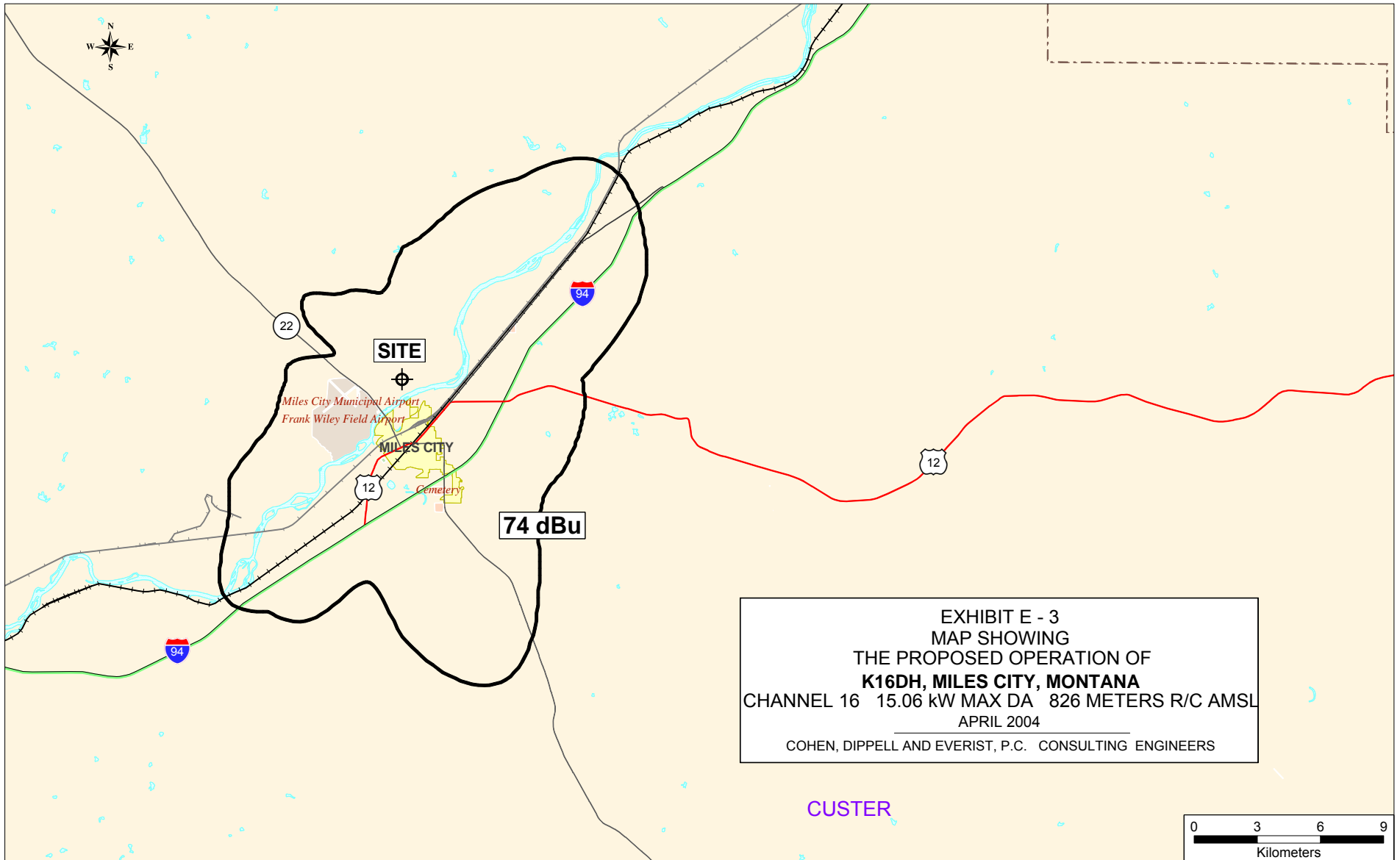
TRUE NORTH



RELATIVE FIELD

EXHIBIT E - 2  
K16DH, MILES CITY, MONTANA  
CH.16 15.06 kW MAX 826 METERS R/C AMSL  
APRIL 2004

COHEN, DIPPELL AND EVERIST, P.C.



### Section III - Engineering

#### TECHNICAL SPECIFICATIONS

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.

#### TECH BOX

1. Channel: \_\_\_\_\_

2. Frequency Offset:

☐

No offset

☐

Zero offset

☐

Plus offset

☐

Minus offset

3. Translator Input Channel No. \_\_\_\_\_

4. Primary station proposed to be rebroadcast:

Call Sign	City	State	Channel
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5. Antenna Location Coordinates: (NAD 27)

\_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " ☐ N ☐ S Latitude  
\_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " ☐ E ☐ W Longitude

6. Antenna Structure Registration Number: \_\_\_\_\_

☐

Not applicable

☐

FAA Notification Filed with FAA

7. Antenna Location Site Elevation Above Mean Sea Level: \_\_\_\_\_ meters

8. Overall Tower Height Above Ground Level: \_\_\_\_\_ meters

9. Height of Radiation Center Above Ground Level: \_\_\_\_\_ meters

10. Maximum Effective Radiated Power (ERP) Towards Radio Horizon: \_\_\_\_\_ kW

11. Maximum ERP in any Horizontal and Vertical Angle: \_\_\_\_\_ kW

12. Transmitting Antenna: ☐ Nondirectional ☐ Directional "Off-the-shelf" ☐ Directional composite

Manufacturer	Model
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Directional Antenna Relative Field Values:

Rotation: \_\_\_\_\_ ° ☐ No rotation ☐ N/A (Nondirectional)

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

**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.

#### CERTIFICATION

13. **Interference.** The proposed facility complies with all of the following applicable rule sections. Check all those that apply. ☐ Yes ☐ No 

See Explanation in Exhibit No.

**TV broadcast analog system protection.**

- a. ☐ 47 C.F.R. Section 74.705.

**Digital TV station protection.**

- b. ☐ 47 C.F.R. Section 74.706.

**Low Power TV and TV translator station protection.**

- c. ☐ 47 C.F.R. Section 74.707.

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 **Exhibit is required.** ☐ Yes ☐ No 

See Explanation in Exhibit No.

Exhibit No.

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.

**PREPARER'S CERTIFICATION ON PAGE 6 MUST BE COMPLETED AND SIGNED.**

### 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		Relationship to Applicant (e.g., Consulting Engineer)	
Signature		Date	
Mailing Address			
City		State or Country (if foreign address)	ZIP Code
Telephone Number (include area code)		E-Mail Address (if available)	

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).