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January 30, 2002

Eve J. Klindera  
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eklinder@wrf.com

**VIA HAND DELIVERY**

Magalie Roman Salas, Secretary  
Federal Communications Commission  
236 Massachusetts Avenue, NE  
Suite 110  
Washington, DC 20002

**RECEIVED**

JAN 30 2002

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**Re: KNBJ, Bemidji, MN (Facility Id. No. 42966)  
Minor Amendment to Pending Application/FCC Form 340  
Contingent Application Filed Pursuant to Section 73.3517**

Dear Ms. Salas:

Submitted herewith, in triplicate, on behalf of Minnesota Public Radio ("MPR"), the licensee of KNBJ, Bemidji, Minnesota (Facility Id. No. 42966), is a minor amendment to an application on FCC Form 340 for minor modification of the station's construction permit. Specifically, the application, as amended, proposes to increase the station's power to 100 kW. MPR is a noncommercial educational licensee. Therefore, no fee is required for this filing.

As noted in Exhibit E1, MPR is concurrently filing an application to directionalize the antenna of KQMN, Thief River Falls, Minnesota (Facility Id. No. 42974). The two applications are being filed as part of a related group of applications to make modifications to facilities, pursuant to Section 73.3517 of the Commission's rules. See 47 C.F.R. § 73.3517. For technical reasons, the grant of the KNBJ application is contingent upon a grant of the KQMN application. MPR is the licensee of both stations involved, and believes that it is desirable to undertake the coordinated facility modifications proposed in the applications. Accordingly, MPR requests that the two applications be processed and approved simultaneously.

Respectfully submitted,

Eve J. Klindera

WRFMAIN 1087181.1

FOR  
FCC  
USE  
ONLY

# FCC 340

## APPLICATION FOR CONSTRUCTION PERMIT FOR RESERVED CHANNEL NONCOMMERCIAL EDUCATIONAL BROADCAST STATION

FOR COMMISSION USE ONLY  
FILE NO.

### Section I - General Information

|  |  |   |
|--|--|---|
| 1. Legal Name of the Licensee/Permittee<br>Minnesota Public Radio              |  |   |
| Mailing Address<br>45 East Seventh St.   |  |   |
| City<br>St. Paul   | State or Country (if foreign address)<br>MN        | ZIP Code<br>55101                                   |
| Telephone Number (include area code)<br>651 290-1500                           | E-Mail Address (if available)<br>mgramling@mpr.org |   |
| Call Sign<br>KNBJ  | Facility Identifier<br>42966                       |   |
| 2. Contact Representative (if other than licensee/permittee)<br>Todd Stansbury |  | Firm or Company Name<br>Wiley Rein & Fielding       |
| Telephone Number (include area code)<br>202-719-4948                           |  | E-Mail Address (if available)<br>tstansbury@wrf.com |

3. Is this application being filed in response to a window?  Yes  No

If Yes, specify closing date and/or window number: \_\_\_\_\_

### 4. Application Purpose.

- |  |  |
|--|--|
| <input type="checkbox"/> New station                       | <input type="checkbox"/> Major Modification of construction permit         |
| <input type="checkbox"/> Major Change in licensed facility | <input type="checkbox"/> Minor Modification of construction permit         |
| <input type="checkbox"/> Minor Change in licensed facility | <input type="checkbox"/> Major Amendment to pending application            |
|  | <input checked="" type="checkbox"/> Minor Amendment to pending application |

See Ex #E1,  
Engineering  
N/A Statement

a. File number of original construction permit: BMPED20011114ABR

b. Service Type:  FM  TV  DTV

c. Community of License: 

|                 |             |
|-----------------|-------------|
| City<br>Bemidji | State<br>MN |
|-----------------|-------------|

d. Facility Type:  Main  Auxiliary

If an amendment, submit as an Exhibit a listing by Section and Question Number of the portions of the pending application that are being revised.

Exhibit No.  
E2

This box is for FCC use only:

Technical Points:

- 0 points.
- 1 point. Applicant's proposal covers the largest area and population, and both area and population are 10% greater than next best proposal; or
- 2 points. Applicant's proposal covers the largest area and population, and both area and population are 25% greater than next best proposal.

POINTS CLAIMED BY APPLICANT (from Questions 1-3)

TECHNICAL POINTS? (from Question 4)

TOTAL POINTS

**Section V -- Tie Breakers -- New and Major Change Applications Only** (used to choose among competing radio and television applicants receiving the same number of points in Section IV)

1. **Existing Authorizations.** By placing a number in the box, the applicant certifies that it and other parties to the application have, as of the date of filing and pursuant to 47 C.F.R. Section 73.3555, attributable interests in the stated number of relevant broadcast station authorizations. Radio applicants should count all attributable full service radio stations, AM and FM, commercial and noncommercial, and FM translator stations other than fill-in stations or those identified in IV(2)(b) above. TV applicants should count all attributable full service TV stations, commercial and noncommercial and TV translator stations other than fill-in stations or those identified in IV(2)(b) above.

(number of commercial and noncommercial licenses and construction permits)

2. **Pending Applications.** By placing a number in the box, the applicant certifies that it and other parties to the application have, as of the date of filing and pursuant to 47 C.F.R. Section 73.3555, attributable interests in the stated number of pending applications for new or major changes to relevant broadcast stations. Radio applicants should count all attributable full service radio stations, AM and FM, commercial and noncommercial, and FM translator stations other than fill-in stations or those identified in IV(2)(b) above. TV applicants should count all attributable full service TV stations, commercial and noncommercial, and TV translator stations other than fill-in stations or those identified in IV(2)(b) above.

(number of pending commercial and noncommercial applications)

**Section VI -- Certification**

I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith. I acknowledge that all certifications and attached Exhibits are considered material representations. I hereby waive any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and request an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

|   |  |
|---|--|
| Typed or Printed Name of Person Signing<br>THOMAS J Kigin | Typed or Printed Title of Person Signing<br>Executive Vice President |
| Signature<br>Thomas J Kigin                               | Date<br>2002.01.28.  |

**SECTION VII - FM Engineering on Channels 200-220**

**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: 217

2. Class:  D  A  B1  B  C3  C2  C1  C

3. Antenna Location Coordinates: (NAD 27)  
47 ° 42 ' 16 "  N  S Latitude  
94 ° 39 ' 03 "  E  W Longitude

4. Antenna Structure Registration Number: \_\_\_\_\_  
 Not applicable  FAA Notification Filed with FAA

5. Antenna Location Site Elevation Above Mean Sea Level: 426 meters

6. Overall Tower Height Above Ground Level: 306 meters

7. Height of Radiation Center Above Ground Level: 287 meters (H) 287 meters (V)

8. Height of Radiation Center Above Average Terrain: 298 meters (H) 298 meters (V)

9. Effective Radiated Power: 100 kW (H) 100 kW (V)

10. Maximum Effective Radiated Power:  Not applicable \_\_\_\_\_ kW (H) \_\_\_\_\_ kW (V)  
 (Beam-Tilt Antenna ONLY)

11. Directional Antenna Relative Field Values:  Not applicable (Nondirectional)  
 Rotation: \_\_\_\_\_ °  No rotation

| 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

AUXILIARY ANTENNA APPLICANTS ARE NOT REQUIRED TO RESPOND TO ITEMS 12-16.

12. **Main Studio Location.** The proposed main studio location complies with 47 C.F.R. Section 73.1125.  Yes  No See Explanation in Exhibit No. E3

13. **Interference.** The proposed facility complies with all of the following rule sections. Check all those that apply.  Yes  No See Explanation in Exhibit No. E4

**Contour Overlap Requirements.**

a.  47 C.F.R. Section 73.509. **Exhibit Required.** Exhibit No. E4

**Spacing Requirements.**

b.  47 C.F.R. Section 73.207 with respect to station(s): N/A

**Grandfathered Short-Spaced.**

c.  47 C.F.R. Section 73.213(a) with respect to station(s): \_\_\_\_\_ Exhibit No. N/A

**Contour Protection.**

d.  47 C.F.R. Section 73.215 with respect to station(s): \_\_\_\_\_ Exhibit No. N/A

**Television Channel 6 Protection.**

e.  47 C.F.R. Section 73.525 with respect to station(s): \_\_\_\_\_ Exhibit No. N/A

14. **Reserved Channels Above 220.**

a. **Allotment.** The proposed facility complies with the allotment requirements of 47 C.F.R. Section 73.203.  Yes  No See Explanation in Exhibit No. N/A

b. **Community Coverage.** The proposed facility complies with 47 C.F.R. Section 73.315.  Yes  No See Explanation in Exhibit No. N/A

15. **International Borders.** The proposed antenna location is not within 320 kilometers of the common border between the United States and Canada or Mexico.  Yes  No   
  Canada  Mexico

Exhibit No. E4

If "No," specify the country and provide an Exhibit of compliance with all provisions of the relevant International Agreement.

16. **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 compliance through the use of the RF worksheets in Worksheet #7, an **Exhibit is required.**

Yes  No

See Explanation  
in Exhibit No.  
E5

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 8 MUST BE COMPLETED AND SIGNED.**

**Section VII -- Preparer's Certification**

I certify that I have prepared Section VII (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<br>Katherine A. Michler   |  | Relationship to Applicant (e.g., Consulting Engineer)<br>Technical Consultant |                   |
| Signature <i>Katherine A. Michler</i>  |  | Date<br>Jan. 21, 2002   |                   |
| Mailing Address<br>Doug Vernier Telecommunications Consultants, 1600 Picturesque Drive |  |   |                   |
| City<br>Cedar Falls  |  | State or Country (if foreign address)<br>IA                                   | ZIP Code<br>50613 |
| Telephone Number (include area code)<br>319 266-8402                                   |  | E-Mail Address (if available)<br>kmichler@v-soft.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).

**EXHIBIT #E1**  
**ENGINEERING STATEMENT**

Concerning the Application of  
Minnesota Public Radio  
To Make a Minor Amendment to  
The Pending Application for KNBJ,  
Serving Bemidji, Minnesota

BMPED2001114ABR

January 2002

**100 kW H & V**

**Channel 217C1**

This engineering statement supports the application filed by Minnesota Public Radio to make a minor amendment to the pending application for KNBJ, a non-commercial, educational FM station serving Bemidji, Minnesota.

Minnesota Public Radio (MPR) proposes to increase power to 100 kW. No other changes are being proposed at this time.

**Exhibit #E2** is a listing of the Section and Question Numbers of the pending application to be amended.

**Exhibit #E3** is a map of the proposed 1 mV/m (60 dBu) signal contour. Bemidji, Minnesota, the city of licensee, is shown to be fully encompassed by this contour. The main studio is located in Bemidji. The coverage map was computer generated using the U.S.G.S. World Map database. Three hundred and sixty evenly spaced radials were used to plot the 60 dBu contour. The area within the proposed one mV/m contour amounts to 16,359 square kilometers. This figure was determined using numerical calculus. The distance to the one mV/m signal contour along each of 360 evenly spaced radial azimuths was squared and then the average of the sum of these distances was calculated. The resulting average radius squared was then multiplied by  $\pi$  to determine the area within the contour. The population within the 60 dBu service contour was determined to be 64,896 people through the use of a computer program which extracts a population count based on population centroids defined by U.S. Census 2000 (PL-94-171) digital census block data.

Thirty-six evenly spaced radials were used to determine the antenna height above average terrain. The N.G.D.C. 30 arc-second terrain database was used to determine the radial elevations at 0.1 kilometer increments from 3 to 16 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 #3 of this exhibit.)

**Exhibit #E4** is a single channel, contour-to-contour, allocation study showing that interference is neither caused nor received by an FM radio station, application for facilities or construction permit. Page #2 is a description of the methods used to prepare this study. This application is contingent upon approval of Minnesota Public Radio's proposal, filed simultaneously with this application, to employ a directional antenna for Station KQMN, Thief River Falls. Page #3 is a map of the proposed contour relationship between the two modified facilities. Pages 4-6 are FMOVER tables depicting that relationship. Pages 7-10 are a map and FMOVER tables of the protected and interfering contours of the proposed facility and co-channel station KUWS.

There are no I.F. relationships. The proposal is within 320 kilometers of the U.S. border with Canada, however all Working Agreement minimum separation spacings are met or exceeded.

The proposed channel 217 facility will be outside the 174 kilometer cut-off distance with regard to protection to the closest channel-six TV station WDAYTV, therefore no channel-six TV exhibit is required for this proposal.

**Exhibit #E5** shows compliance with the Commission's R.F. emission's standards.

Page #4 of this exhibit (Ex. # E1) is a declaration made by the preparer, Kate Michler, attesting to her qualifications.

| Azimuth<br>Deg.T. | Ave. Elev.<br>3 to 16 km<br>Meters AMSL | Effective<br>Antenna Height<br>Meters AAT | ERP<br>(dBk) | F(50-50)<br>Distance to<br>60 dBU Contour<br>km |
|-------------------|---|---|--------------|---|
| 0                 | 397.9                                   | 315.1                                     | 20.000       | 73.52   |
| 10                | 402.6                                   | 310.4                                     | 20.000       | 73.17   |
| 20                | 405.6                                   | 307.4                                     | 20.000       | 72.94   |
| 30                | 407.2                                   | 305.8                                     | 20.000       | 72.82   |
| 40                | 411.6                                   | 301.4                                     | 20.000       | 72.49   |
| 50                | 415.8                                   | 297.2                                     | 20.000       | 72.16   |
| 60                | 419.1                                   | 293.9                                     | 20.000       | 71.90   |
| 70                | 420.9                                   | 292.1                                     | 20.000       | 71.76   |
| 80                | 428.2                                   | 284.8                                     | 20.000       | 71.16   |
| 90                | 426.9                                   | 286.1                                     | 20.000       | 71.27   |
| 100               | 422.9                                   | 290.1                                     | 20.000       | 71.59   |
| 110               | 419.8                                   | 293.2                                     | 20.000       | 71.84   |
| 120               | 419.7                                   | 293.3                                     | 20.000       | 71.85   |
| 130               | 417.6                                   | 295.4                                     | 20.000       | 72.02   |
| 140               | 412.6                                   | 300.4                                     | 20.000       | 72.42   |
| 150               | 411.4                                   | 301.6                                     | 20.000       | 72.51   |
| 160               | 416.1                                   | 296.9                                     | 20.000       | 72.14   |
| 170               | 415.8                                   | 297.2                                     | 20.000       | 72.17   |
| 180               | 417.5                                   | 295.5                                     | 20.000       | 72.03   |
| 190               | 419.6                                   | 293.4                                     | 20.000       | 71.86   |
| 200               | 416.5                                   | 296.5                                     | 20.000       | 72.11   |
| 210               | 418.8                                   | 294.2                                     | 20.000       | 71.93   |
| 220               | 421.4                                   | 291.6                                     | 20.000       | 71.71   |
| 230               | 418.9                                   | 294.1                                     | 20.000       | 71.92   |
| 240               | 423.3                                   | 289.7                                     | 20.000       | 71.56   |
| 250               | 429.6                                   | 283.4                                     | 20.000       | 71.04   |
| 260               | 430.7                                   | 282.3                                     | 20.000       | 70.95   |
| 270               | 428.2                                   | 284.8                                     | 20.000       | 71.16   |
| 280               | 425.1                                   | 287.9                                     | 20.000       | 71.41   |
| 290               | 422.2                                   | 290.8                                     | 20.000       | 71.65   |
| 300               | 413.1                                   | 299.9                                     | 20.000       | 72.37   |
| 310               | 409.8                                   | 303.2                                     | 20.000       | 72.62   |
| 320               | 404.2                                   | 308.8                                     | 20.000       | 73.04   |
| 330               | 397.3                                   | 315.7                                     | 20.000       | 73.56   |
| 340               | 392.7                                   | 320.3                                     | 20.000       | 73.90   |
| 350               | 394.0                                   | 319.0                                     | 20.000       | 73.80   |
| Ave. =            | 415.4 M                                 | 297.6 M                                   |              |   |

Antenna Radiation Center AMSL =713 M  
 NGDC 30 Arc Sec.

Geographic Coordinates:

N. Lat. 47 42 16  
 W. Lng. 94 39 03

**Declaration:**

I, Katherine A. Michler, have received a Bachelor of Science degree from the University of Northern Iowa, and;

That, I declare that I have received training as a technical consultant as a member of the staff of Doug Vernier Telecommunications Consultants, and;

That, I have apprenticed under Douglas Vernier for over four years, and;

That, he has been active in broadcast consulting for over 25 years, and;

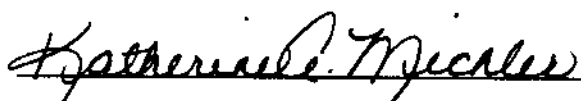
That, his qualifications are a matter of record with the Federal Communications Commission, and;

That, I am an Associate Member (#20792) of the Society of Broadcast Engineers, Indianapolis, Indiana, and;

That, the consulting firm of Doug Vernier Telecommunications Consultants has been retained by Minnesota Public Radio, St. Paul, Minnesota;

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

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

 Katherine A. Michler

Executed on January 21, 2002

Subscribed and sworn before me this 21st day of January, 2002.

  
\_\_\_\_\_  
Notary Public in and for the State of Iowa

**EXHIBIT #E2**

**Sections to be Amended**

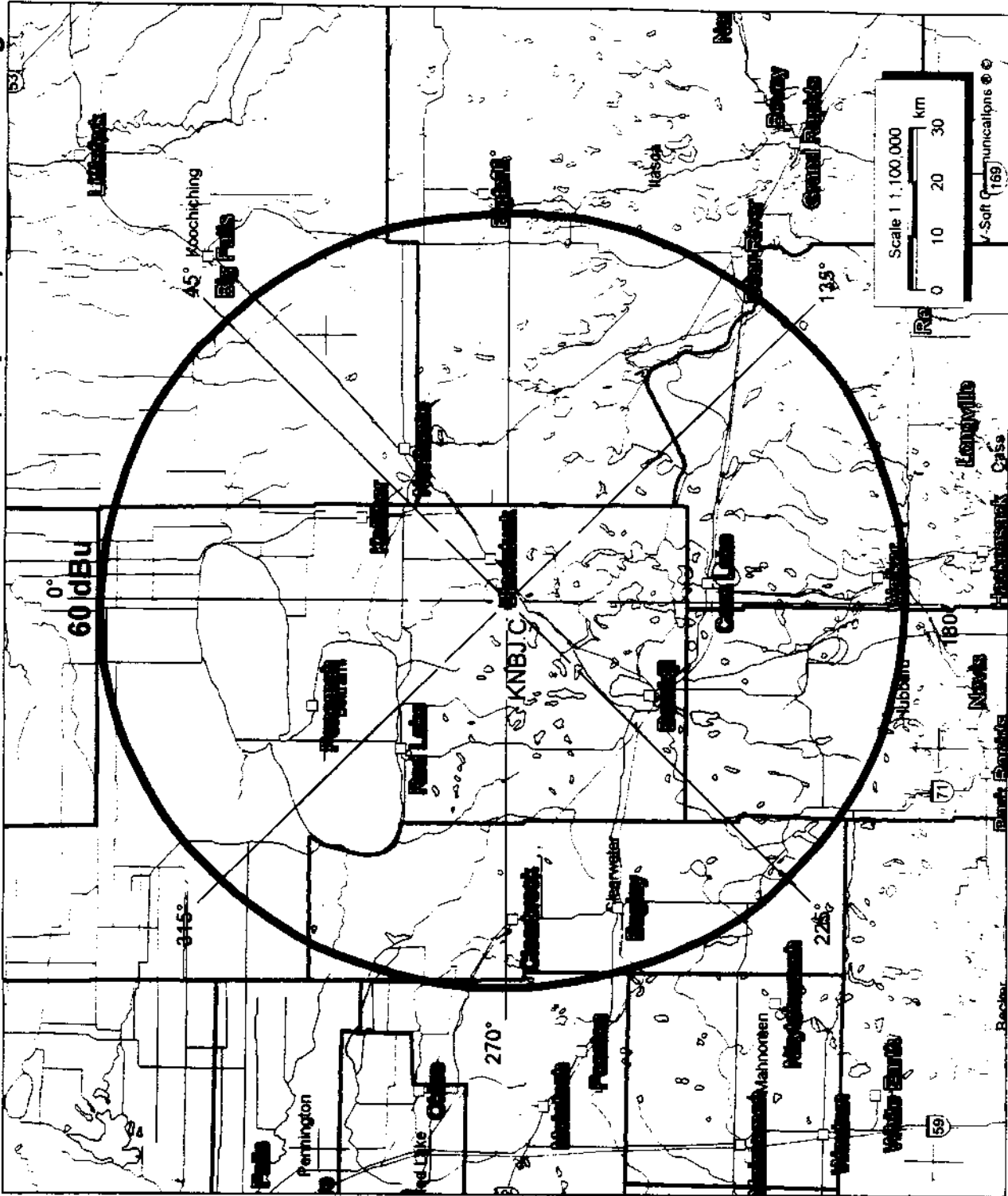
KNBJ  
BMPED20011114ABR  
Bemidji, Minnesota

Channel 217 – 100 kW ERP

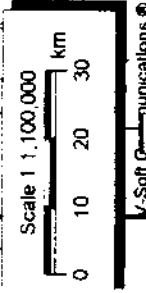
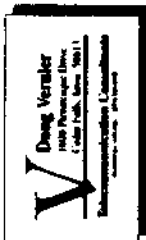
January 2002

The applicant proposed to amend its pending application (BMPED20011114ABR) to change Section VII, Question 9 to 100 kW. No other changes are being proposed at this time.

**KNBJ (Proposed) 60 dBu Coverage**



**KNBJ.A**  
 Amendment  
 BPED200114ABR  
 Latitude: 47-42-16 N  
 Longitude: 094-39-03 W  
 Power: 100 kW  
 Channel: 217  
 Frequency: 91.3 MHz  
 AMSL Height: 712.9 m  
 Elevation: 427.0 m  
 Horiz. Pattern: Omni  
 Vert. Pattern: No  
 Prop Model: FCC Contour  
  
 Population = 64,896  
 Area = 16,359 sq km  
 January, 2002



Ex #E4, Allocation

| KNBJ Amendment   |        |         |       |                  |          |         |         |                            |                 |          |
|--|--------|---------|-------|------------------|----------|---------|---------|----------------------------|-----------------|----------|
| Minnesota Public Radio   |        |         |       |                  |          |         |         |                            |                 |          |
| CH# 217C1 - 91.3 MHz, Pwr= 100 kw, HAAT=297.6 M, COR= 713 M                                      |        |         |       |                  |          |         |         |                            |                 |          |
| Average Protected F(50-50)= 72.2 km  |        |         |       |                  |          |         |         |                            |                 |          |
| Ave. F(50-10) 40 dBu= 171.7 54 dBu= 104.8 80 dBu= 33.6 100 dBu= 10.1                             |        |         |       |                  |          |         |         |                            |                 |          |
| DISPLAY DATES  |        |         |       |                  |          |         |         |                            |                 |          |
| DATA 01-18-02  |        |         |       |                  |          |         |         |                            |                 |          |
| SEARCH 01-18-02  |        |         |       |                  |          |         |         |                            |                 |          |
| CH   | CALL   | TYPE    | AZI.  | DIST             | LAT.     | Pwr(kw) | COR(M)  | PRO(km)                    | *IN*            | *OUT*    |
| CITY   |        | STATE   | <--   | FILE #           | LNG.     | HAAT(M) | INT(km) | LICENSEE                   | (Overlap in km) |          |
| 217C1  | KNBJ.A | APP CX  | 0.0   | 0.00             | 47 42 16 | 30.000  | 713     | 60.2                       | -215.08<        | -231.94< |
| Bemidji  |        | MN      | 180.0 | BMPE020011114ABR | 94 39 03 | 298     | 142.9   | Minnesota Public Radio     |                 |          |
| 217C1  | KNBJ.C | CP CX   | 98.3  | 10.05            | 47 41 29 | 80.000  | 680     | 66.8                       | -224.69<        | -228.48< |
| Bemidji  |        | MN      | 278.3 | BPED20010208AAN  | 94 31 06 | 259     | 162.5   | Minnesota Public Radio     |                 |          |
| 217C1  | KNBJ   | LIC CN  | 91.8  | 12.27            | 47 42 03 | 60.000  | 717     | 67.0                       | -218.79<        | -226.45< |
| Bemidji  |        | MN      | 271.8 | BLED19940711KY   | 94 29 15 | 297     | 158.9   | Minnesota Public Radio     |                 |          |
| 217C1  | *KUWS  | LIC CN  | 117.1 | 217.34           | 46 47 21 | 83.000  | 501     | 42.6                       | 8.82            | 3.34     |
| Superior   |        | WI      | 297.1 | BLED19910122KA   | 92 06 51 | 69      | 136.6   | 8d. Of Regents, Univ. Of w |                 |          |
| > Reference HAAT at 117.1°= 293.9 M, Pwr= 100.0 kw, Pro. Dist. = 71.9 km, Int Dist. = 171.36 km  |        |         |       |                  |          |         |         |                            |                 |          |
| 218C1  | *KQMN  | LIC DCN | 282.5 | 149.68           | 47 58 38 | 15.000  | 474     | 45.0                       | 11.82           | 0.73     |
| Thief River Falls  |        | MN      | 102.5 | BLED19901205KF   | 96 36 32 | 181     | 66.4    | Minnesota Public Radio     |                 |          |
| > Reference HAAT at 282.5°= 288.2 M, Pwr= 100.0 kw, Pro. Dist. = 71.44 km, Int Dist. = 103.93 km |        |         |       |                  |          |         |         |                            |                 |          |
| 216C1  | KCCFM  | LIC CN  | 235.3 | 181.61           | 46 45 35 | 67.000  | 486     | 60.1                       | 20.43           | 16.64    |
| Moorhead   |        | MN      | 55.3  | BLED19811119AL   | 96 36 26 | 201     | 89.0    | Minnesota Public Radio     |                 |          |
| 219C1  | KAXE   | LIC CN  | 118.2 | 104.45           | 47 15 17 | 100.000 | 546     | 57.1                       | 25.40           | 37.25    |
| Grand Rapids   |        | MN      | 298.2 | BLED1533         | 93 26 03 | 140     | 6.9     | Northern Community Radio   |                 |          |
| 217C   | KRSU   | LIC CN  | 200.6 | 300.48           | 45 10 03 | 75.000  | 648     | 72.5                       | 58.27           | 56.25    |
| Appleton   |        | MN      | 20.6  | BLED19891031KB   | 96 00 02 | 341     | 170.0   | Minnesota Public Radio     |                 |          |
| 270C2  | KQKK   | LIC C   | 157.7 | 78.15            | 47 03 14 | 50.000  | 524     | 47.8                       | 27.0R           | 51.2M    |
| walker   |        | MN      | 337.7 | BLH19990802KA    | 94 15 32 | 119     | 0.0     | Carol J. Delahunt          |                 |          |
| 218A   | KNWF   | CP CN   | 215.9 | 188.90           | 46 19 16 | 0.100   | 445     | 8.6                        | 104.62          | 75.48    |
| Fergus Falls   |        | MN      | 35.9  | BPED19981120MC   | 96 05 36 | 69      | 12.1    | Minnesota Public Radio     |                 |          |
| 220A   | KXBR   | LIC C   | 42.6  | 131.99           | 48 34 15 | 1.500   | 384     | 12.6                       | 58.19           | 109.30   |
| International Falls  |        | MN      | 222.6 | BLED20000626AEO  | 93 26 19 | 39      | 1.6     | Heartland Christian Broadc |                 |          |
| 214C1  | KBPR   | LIC CN  | 174.2 | 143.24           | 46 25 21 | 34.000  | 597     | 54.5                       | 64.80           | 78.69    |
| Brainerd   |        | MN      | 354.2 | BLED19880222KG   | 94 27 41 | 207     | 6.2     | Minnesota Public Radio Inc |                 |          |
| 215C2  | WIRR   | LIC CN  | 98.7  | 142.23           | 47 29 46 | 21.000  | 615     | 46.7                       | 65.05           | 85.48    |
| Virginia-hibbing   |        | MN      | 278.7 | BLED19850827KC   | 92 47 05 | 168     | 5.0     | Minnesota Public Radio     |                 |          |
| 06Z2C  | WDAYTV | LI HN   | 249.1 | 207.37           | 47 00 43 | 100.000 | 643     | 107.4                      | To Grd B=       | 100.01   |
| Fargo  |        | ND      | 69.1  | BMLCT624         | 97 11 58 | 351     | 0.0     | Forum Communications Compa |                 |          |

"\*" = ERP and HAAT on direct line to and from reference station. "<" = Contour overlap

## HOW TO READ THE FM COMPUTER PRINT-OUT

The computer printout should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. The 60 dBu protected contour is predicted from the Commission's F(50-50) table, while the 40, 54, 80 and 100 dBu contours are interference contours derived from the Commission's F(50-10) table. Contour distances are in kilometers and are predicted using spline interpolation from data points identical to those published in Report No. RS 76-01 by Gary C. Kalagian. Critical contour distances are determined using the Commission's TVFMINT FORTRAN subroutine. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. If signal contour distances are less than 1.6 km the free-space equation is used.

The column listed "\*\* IN \*\*" is the sum of the reference station's 60 dBu protected contour and the data file station's interference contour subtracted from the distance between the stations. (All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90.) Therefore, the column is a measure of incoming interference. Negative distances in this column indicate the presence of interference. Listed antenna heights are the average heights of eight standard radials as found in the Commission's records unless otherwise noted, in which case the specific antenna heights and the DA power, if applicable, along the straight line azimuths between the reference station and the database station are used and visa versa. The column labeled "\*\* OUT \*\*" shows the distance in kilometers of overlap or clearance between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing overlap interference.

Under the "AZIMUTH" column, the first row of numbers indicate the bearings from True North of the data base stations in relationship with the reference station, while the numbers in the second row indicate the reverse bearings from the database station to the reference station.

The columns labeled "INT" and "PRO" hold the distance in kilometers of the appropriate interference contour and the protected contour of a data base station.

For I.F. relationships the "IN" and "OUT" columns change their significance. The letter "R" stands for the minimum **required** distance in kilometers, while the letter "M" in the next column follows the **available clear space** separation in kilometers. Minimum separation distances when displayed are taken from Sec 73.207 of the rules as amended. Canadian and Mexican separation distances, U/D ratios and protected contour values are from the US/Mexican Working Agreement and the US/Canada Working Agreement".

The first three letters of the "TYPE" column identify the current FCC status of the stations. The fourth letter will be a "D" or "Z" (Sec. 73.215) if the facility is directional. The fifth letter will be an E, H or V depending on the type of antenna polarization. The sixth letter will be a "Y" if the antenna uses beam tilt.





KNBJ.A BMPED20011114ABR  
 Channel = 217C1  
 Max ERP = 100 kW  
 RCAMSL = 713 M  
 N. Lat = 47 42 16  
 W. Lng = 94 39 03

KQMN BLED19901205KF  
 Channel = 218C1  
 Max ERP = 84 kW  
 RCAMSL = 474 M  
 N. Lat = 47 58 38  
 W. Lng = 96 36 32

Protected  
 60 dBu

Interfering  
 54 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 265.0                | 100.0000    | 0283.8      | 071.1        | 115.4                | 018.8193    | 0182.9      | 084.1        | 49.3            |
| 266.0                | 100.0000    | 0283.9      | 071.1        | 114.7                | 018.2707    | 0182.9      | 083.5        | 49.3            |
| 267.0                | 100.0000    | 0284.2      | 071.1        | 113.9                | 017.7293    | 0183.0      | 082.9        | 49.4            |
| 268.0                | 100.0000    | 0284.4      | 071.1        | 113.2                | 017.1822    | 0182.9      | 082.4        | 49.5            |
| 269.0                | 100.0000    | 0284.6      | 071.1        | 112.4                | 016.6313    | 0182.7      | 081.8        | 49.5            |
| 270.0                | 100.0000    | 0284.8      | 071.2        | 111.6                | 016.0778    | 0182.7      | 081.3        | 49.5            |
| 271.0                | 100.0000    | 0285.0      | 071.2        | 110.8                | 015.5227    | 0182.4      | 080.8        | 49.5            |
| 272.0                | 100.0000    | 0285.2      | 071.2        | 110.0                | 015.0000    | 0182.1      | 080.4        | 49.5            |
| 273.0                | 100.0000    | 0285.5      | 071.2        | 109.1                | 015.0000    | 0181.9      | 080.0        | 49.6            |
| 274.0                | 100.0000    | 0285.9      | 071.2        | 108.3                | 015.0000    | 0181.8      | 079.6        | 49.7            |
| 275.0                | 100.0000    | 0286.2      | 071.3        | 107.4                | 015.0000    | 0181.7      | 079.3        | 49.8            |
| 276.0                | 100.0000    | 0286.5      | 071.3        | 106.5                | 015.0000    | 0181.7      | 079.0        | 49.9            |
| 277.0                | 100.0000    | 0286.9      | 071.3        | 105.6                | 015.0000    | 0181.7      | 079.0        | 49.9            |
| 278.0                | 100.0000    | 0287.3      | 071.4        | 104.7                | 015.0000    | 0181.5      | 078.7        | 50.0            |
| 279.0                | 100.0000    | 0287.6      | 071.4        | 103.8                | 015.0000    | 0181.4      | 078.5        | 50.0            |
| 280.0                | 100.0000    | 0287.9      | 071.4        | 102.9                | 015.0000    | 0181.4      | 078.5        | 50.0            |
| 281.0                | 100.0000    | 0288.1      | 071.4        | 102.0                | 015.0000    | 0181.3      | 078.3        | 50.1            |
| 282.0                | 100.0000    | 0288.2      | 071.4        | 101.1                | 015.0000    | 0181.3      | 078.3        | 50.1            |
| 283.0                | 100.0000    | 0288.3      | 071.5        | 100.2                | 015.0000    | 0181.3      | 078.2        | 50.1            |
| 284.0                | 100.0000    | 0288.5      | 071.5        | 099.3                | 015.0000    | 0181.2      | 078.1        | 50.1            |
| 285.0                | 100.0000    | 0288.9      | 071.5        | 098.3                | 015.0000    | 0181.0      | 078.1        | 50.2            |
| 286.0                | 100.0000    | 0289.1      | 071.5        | 097.4                | 015.0000    | 0180.9      | 078.1        | 50.1            |
| 287.0                | 100.0000    | 0289.4      | 071.5        | 096.5                | 015.0000    | 0180.8      | 078.1        | 50.1            |
| 288.0                | 100.0000    | 0289.9      | 071.6        | 095.6                | 015.0000    | 0180.7      | 078.1        | 50.1            |
| 289.0                | 100.0000    | 0290.4      | 071.6        | 094.7                | 015.0000    | 0180.7      | 078.2        | 50.1            |
| 290.0                | 100.0000    | 0290.8      | 071.7        | 093.8                | 015.0000    | 0180.7      | 078.3        | 50.1            |
| 291.0                | 100.0000    | 0291.4      | 071.7        | 093.0                | 015.0000    | 0180.7      | 078.3        | 50.1            |
| 292.0                | 100.0000    | 0292.2      | 071.8        | 092.1                | 015.0000    | 0180.7      | 078.5        | 50.0            |
| 293.0                | 100.0000    | 0293.1      | 071.8        | 091.2                | 015.0000    | 0180.5      | 078.7        | 49.9            |
| 294.0                | 100.0000    | 0294.2      | 071.9        | 090.4                | 015.0000    | 0180.5      | 078.7        | 49.9            |
| 295.0                | 100.0000    | 0295.5      | 072.0        | 089.5                | 015.3220    | 0180.3      | 078.9        | 49.9            |
| 296.0                | 100.0000    | 0296.7      | 072.1        | 088.7                | 015.8875    | 0180.3      | 078.9        | 49.9            |
| 297.0                | 100.0000    | 0297.8      | 072.2        | 087.9                | 016.4502    | 0180.1      | 079.2        | 49.8            |
| 298.0                | 100.0000    | 0298.8      | 072.3        | 087.1                | 017.0089    | 0179.9      | 079.5        | 49.7            |
| 299.0                | 100.0000    | 0299.4      | 072.3        | 086.3                | 017.5594    | 0179.9      | 079.5        | 49.7            |

KQMN BLED19901205KF  
 Channel = 218C1  
 Max ERP = 84 kW  
 RCAMSL = 474 M  
 N. Lat = 47 58.38  
 W. Lng = 96 36 32

KNBJ.A BMPED20011114ABR  
 Channel = 217C1  
 Max ERP = 100 kW  
 RCAMSL = 713 M  
 N. Lat = 47 42 16  
 W. Lng = 94 39 03

Protected  
 60 dBu

Interfering  
 54 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 071.0                | 034.0368    | 0178.7      | 052.1        | 296.5                | 100.0000    | 0296.7      | 108.1        | 53.0            |
| 072.0                | 032.6224    | 0178.4      | 051.7        | 296.0                | 100.0000    | 0296.7      | 107.7        | 53.1            |
| 073.0                | 031.2379    | 0178.0      | 051.2        | 295.5                | 100.0000    | 0295.5      | 107.4        | 53.2            |
| 074.0                | 029.8835    | 0177.7      | 050.8        | 295.0                | 100.0000    | 0295.5      | 107.2        | 53.3            |
| 075.0                | 028.5591    | 0177.6      | 050.4        | 294.5                | 100.0000    | 0294.2      | 106.9        | 53.3            |
| 076.0                | 027.2646    | 0177.4      | 050.0        | 294.0                | 100.0000    | 0294.2      | 106.7        | 53.3            |
| 077.0                | 026.0003    | 0177.3      | 049.5        | 293.5                | 100.0000    | 0293.1      | 106.6        | 53.4            |
| 078.0                | 024.7659    | 0177.3      | 049.1        | 292.9                | 100.0000    | 0293.1      | 106.4        | 53.4            |
| 079.0                | 023.5615    | 0177.2      | 048.6        | 292.4                | 100.0000    | 0292.2      | 106.4        | 53.4            |
| 080.0                | 022.3872    | 0177.2      | 048.2        | 291.9                | 100.0000    | 0292.2      | 106.3        | 53.4            |
| 081.0                | 021.5821    | 0177.4      | 047.9        | 291.4                | 100.0000    | 0291.4      | 106.2        | 53.4            |
| 082.0                | 020.7918    | 0177.7      | 047.6        | 290.9                | 100.0000    | 0291.4      | 106.0        | 53.5            |
| 083.0                | 020.0163    | 0178.2      | 047.3        | 290.5                | 100.0000    | 0290.8      | 105.9        | 53.5            |
| 084.0                | 019.2554    | 0178.6      | 047.0        | 290.0                | 100.0000    | 0290.8      | 105.8        | 53.5            |
| 085.0                | 018.5093    | 0178.8      | 046.6        | 289.5                | 100.0000    | 0290.8      | 105.8        | 53.5            |
| 086.0                | 017.7780    | 0179.0      | 046.3        | 289.0                | 100.0000    | 0290.4      | 105.8        | 53.5            |
| 087.0                | 017.0614    | 0179.3      | 046.0        | 288.6                | 100.0000    | 0290.4      | 105.8        | 53.5            |
| 088.0                | 016.3595    | 0179.3      | 045.6        | 288.1                | 100.0000    | 0289.9      | 105.9        | 53.5            |
| 089.0                | 015.6724    | 0179.4      | 045.2        | 287.6                | 100.0000    | 0289.9      | 106.0        | 53.4            |
| 090.0                | 015.0000    | 0179.5      | 044.9        | 287.2                | 100.0000    | 0289.4      | 106.1        | 53.4            |
| 091.0                | 015.0000    | 0179.6      | 044.9        | 286.7                | 100.0000    | 0289.4      | 105.9        | 53.4            |
| 092.0                | 015.0000    | 0179.7      | 044.9        | 286.3                | 100.0000    | 0289.1      | 105.7        | 53.5            |
| 093.0                | 015.0000    | 0179.9      | 044.9        | 285.9                | 100.0000    | 0289.1      | 105.5        | 53.5            |
| 094.0                | 015.0000    | 0180.1      | 044.9        | 285.5                | 100.0000    | 0289.1      | 105.4        | 53.6            |
| 095.0                | 015.0000    | 0180.3      | 044.9        | 285.1                | 100.0000    | 0288.9      | 105.2        | 53.6            |
| 096.0                | 015.0000    | 0180.5      | 045.0        | 284.7                | 100.0000    | 0288.9      | 105.1        | 53.7            |
| 097.0                | 015.0000    | 0180.7      | 045.0        | 284.2                | 100.0000    | 0288.5      | 105.0        | 53.7            |
| 098.0                | 015.0000    | 0180.7      | 045.0        | 283.8                | 100.0000    | 0288.5      | 104.9        | 53.7            |
| 099.0                | 015.0000    | 0180.8      | 045.0        | 283.4                | 100.0000    | 0288.3      | 104.9        | 53.7            |
| 100.0                | 015.0000    | 0180.9      | 045.0        | 282.9                | 100.0000    | 0288.3      | 104.8        | 53.7            |
| 101.0                | 015.0000    | 0181.0      | 045.0        | 282.5                | 100.0000    | 0288.3      | 104.8        | 53.7            |
| 102.0                | 015.0000    | 0181.2      | 045.0        | 282.1                | 100.0000    | 0288.2      | 104.8        | 53.7            |
| 103.0                | 015.0000    | 0181.3      | 045.0        | 281.7                | 100.0000    | 0288.2      | 104.8        | 53.7            |
| 104.0                | 015.0000    | 0181.3      | 045.0        | 281.2                | 100.0000    | 0288.1      | 104.8        | 53.7            |
| 105.0                | 015.0000    | 0181.4      | 045.0        | 280.8                | 100.0000    | 0288.1      | 104.9        | 53.7            |
| 106.0                | 015.0000    | 0181.5      | 045.0        | 280.4                | 100.0000    | 0287.9      | 105.0        | 53.7            |

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 107.0                | 015.0000    | 0181.7      | 045.1        | 279.9                | 100.0000    | 0287.9      | 105.1        | 53.7            |
| 108.0                | 015.0000    | 0181.8      | 045.1        | 279.5                | 100.0000    | 0287.9      | 105.2        | 53.6            |
| 109.0                | 015.0000    | 0181.9      | 045.1        | 279.1                | 100.0000    | 0287.6      | 105.3        | 53.6            |
| 110.0                | 015.0000    | 0182.1      | 045.1        | 278.7                | 100.0000    | 0287.6      | 105.4        | 53.5            |
| 111.0                | 015.6724    | 0182.4      | 045.5        | 278.2                | 100.0000    | 0287.3      | 105.2        | 53.6            |
| 112.0                | 016.3595    | 0182.7      | 045.9        | 277.7                | 100.0000    | 0287.3      | 105.1        | 53.6            |
| 113.0                | 017.0614    | 0182.9      | 046.3        | 277.2                | 100.0000    | 0286.9      | 104.9        | 53.7            |
| 114.0                | 017.7780    | 0183.0      | 046.6        | 276.8                | 100.0000    | 0286.9      | 104.8        | 53.7            |
| 115.0                | 018.5093    | 0182.9      | 047.0        | 276.3                | 100.0000    | 0286.5      | 104.7        | 53.7            |
| 116.0                | 019.2554    | 0182.9      | 047.3        | 275.8                | 100.0000    | 0286.5      | 104.7        | 53.7            |
| 117.0                | 020.0163    | 0182.8      | 047.7        | 275.3                | 100.0000    | 0286.2      | 104.7        | 53.7            |
| 118.0                | 020.7918    | 0182.8      | 048.0        | 274.8                | 100.0000    | 0286.2      | 104.7        | 53.7            |
| 119.0                | 021.5821    | 0182.8      | 048.4        | 274.3                | 100.0000    | 0285.9      | 104.8        | 53.7            |
| 120.0                | 022.3872    | 0182.9      | 048.7        | 273.8                | 100.0000    | 0285.9      | 104.9        | 53.6            |
| 121.0                | 023.5615    | 0183.0      | 049.2        | 273.3                | 100.0000    | 0285.5      | 104.9        | 53.6            |
| 122.0                | 024.7659    | 0183.1      | 049.6        | 272.7                | 100.0000    | 0285.5      | 104.9        | 53.6            |
| 123.0                | 026.0003    | 0183.3      | 050.1        | 272.2                | 100.0000    | 0285.2      | 105.0        | 53.6            |
| 124.0                | 027.2646    | 0183.5      | 050.5        | 271.7                | 100.0000    | 0285.2      | 105.1        | 53.6            |
| 125.0                | 028.5591    | 0183.8      | 050.9        | 271.1                | 100.0000    | 0285.0      | 105.2        | 53.5            |
| 126.0                | 029.8835    | 0184.2      | 051.4        | 270.6                | 100.0000    | 0285.0      | 105.4        | 53.5            |
| 127.0                | 031.2379    | 0184.8      | 051.8        | 270.1                | 100.0000    | 0284.8      | 105.6        | 53.4            |
| 128.0                | 032.6224    | 0185.6      | 052.3        | 269.5                | 100.0000    | 0284.8      | 105.8        | 53.3            |
| 129.0                | 034.0368    | 0186.3      | 052.7        | 269.0                | 100.0000    | 0284.6      | 106.1        | 53.3            |
| 130.0                | 035.4813    | 0186.8      | 053.1        | 268.5                | 100.0000    | 0284.4      | 106.4        | 53.2            |
| 131.0                | 037.3425    | 0187.0      | 053.6        | 267.9                | 100.0000    | 0284.4      | 106.7        | 53.1            |



KNBJ.A BMPED20011114ABR  
 Channel = 217C1  
 Max ERP = 100 kW  
 RCAMSL = 713 M  
 N. Lat = 47 42.16  
 W. Lng = 94 39 03

KUWS BLED19910122KA  
 Channel = 217C1  
 Max ERP = 83 kW  
 RCAMSL = 501 M  
 N. Lat = 46 47 21  
 W. Lng = 92 06 51

Protected  
 60 dBu

Interfering  
 40 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 100.0                | 100.0000    | 0290.1      | 071.6        | 307.0                | 083.0000    | 0068.2      | 150.9        | 37.4            |
| 101.0                | 100.0000    | 0290.7      | 071.6        | 306.5                | 083.0000    | 0068.2      | 150.4        | 37.4            |
| 102.0                | 100.0000    | 0291.1      | 071.7        | 306.1                | 083.0000    | 0069.1      | 149.9        | 37.6            |
| 103.0                | 100.0000    | 0291.2      | 071.7        | 305.6                | 083.0000    | 0069.1      | 149.4        | 37.7            |
| 104.0                | 100.0000    | 0291.4      | 071.7        | 305.2                | 083.0000    | 0070.2      | 149.0        | 37.8            |
| 105.0                | 100.0000    | 0291.8      | 071.7        | 304.7                | 083.0000    | 0070.2      | 148.5        | 37.8            |
| 106.0                | 100.0000    | 0292.3      | 071.8        | 304.3                | 083.0000    | 0071.2      | 148.1        | 38.0            |
| 107.0                | 100.0000    | 0292.8      | 071.8        | 303.8                | 083.0000    | 0071.2      | 147.7        | 38.0            |
| 108.0                | 100.0000    | 0293.1      | 071.8        | 303.3                | 083.0000    | 0071.7      | 147.4        | 38.1            |
| 109.0                | 100.0000    | 0293.3      | 071.9        | 302.9                | 083.0000    | 0071.7      | 147.1        | 38.2            |
| 110.0                | 100.0000    | 0293.2      | 071.8        | 302.4                | 083.0000    | 0071.5      | 146.8        | 38.2            |
| 111.0                | 100.0000    | 0293.0      | 071.8        | 301.9                | 083.0000    | 0071.5      | 146.6        | 38.2            |
| 112.0                | 100.0000    | 0292.9      | 071.8        | 301.4                | 083.0000    | 0070.8      | 146.5        | 38.2            |
| 113.0                | 100.0000    | 0293.0      | 071.8        | 300.9                | 083.0000    | 0070.8      | 146.3        | 38.3            |
| 114.0                | 100.0000    | 0293.3      | 071.9        | 300.4                | 083.0000    | 0070.0      | 146.1        | 38.3            |
| 115.0                | 100.0000    | 0293.7      | 071.9        | 300.0                | 083.0000    | 0070.0      | 146.0        | 38.3            |
| 116.0                | 100.0000    | 0293.9      | 071.9        | 299.5                | 083.0000    | 0069.2      | 145.9        | 38.3            |
| 117.0                | 100.0000    | 0293.9      | 071.9        | 299.0                | 083.0000    | 0069.2      | 145.9        | 38.3            |
| 118.0                | 100.0000    | 0293.7      | 071.9        | 298.5                | 083.0000    | 0068.8      | 145.9        | 38.3            |
| 119.0                | 100.0000    | 0293.4      | 071.9        | 298.0                | 083.0000    | 0068.8      | 146.0        | 38.3            |
| 120.0                | 100.0000    | 0293.3      | 071.9        | 297.5                | 083.0000    | 0068.7      | 146.1        | 38.2            |
| 121.0                | 100.0000    | 0293.3      | 071.9        | 297.0                | 083.0000    | 0068.7      | 146.2        | 38.2            |
| 122.0                | 100.0000    | 0293.5      | 071.9        | 296.5                | 083.0000    | 0068.7      | 146.3        | 38.2            |
| 123.0                | 100.0000    | 0293.9      | 071.9        | 296.0                | 083.0000    | 0068.7      | 146.4        | 38.2            |
| 124.0                | 100.0000    | 0294.2      | 071.9        | 295.5                | 083.0000    | 0068.7      | 146.6        | 38.1            |
| 125.0                | 100.0000    | 0294.5      | 072.0        | 295.0                | 083.0000    | 0068.7      | 146.8        | 38.1            |
| 126.0                | 100.0000    | 0294.8      | 072.0        | 294.6                | 083.0000    | 0068.7      | 147.0        | 38.1            |
| 127.0                | 100.0000    | 0295.0      | 072.0        | 294.1                | 083.0000    | 0068.7      | 147.3        | 38.0            |
| 128.0                | 100.0000    | 0295.1      | 072.0        | 293.6                | 083.0000    | 0068.7      | 147.6        | 38.0            |
| 129.0                | 100.0000    | 0295.1      | 072.0        | 293.1                | 083.0000    | 0068.9      | 148.0        | 37.9            |
| 130.0                | 100.0000    | 0295.4      | 072.0        | 292.7                | 083.0000    | 0068.9      | 148.4        | 37.8            |
| 131.0                | 100.0000    | 0295.8      | 072.1        | 292.2                | 083.0000    | 0069.5      | 148.8        | 37.8            |
| 132.0                | 100.0000    | 0296.3      | 072.1        | 291.8                | 083.0000    | 0069.5      | 149.2        | 37.7            |
| 133.0                | 100.0000    | 0296.6      | 072.1        | 291.3                | 083.0000    | 0070.5      | 149.6        | 37.7            |
| 134.0                | 100.0000    | 0296.9      | 072.1        | 290.9                | 083.0000    | 0070.5      | 150.1        | 37.6            |

KUWS  
 Channel = 217C1  
 Max ERP = 83 kW  
 RCAMSL = 501 M  
 N. Lat = 46 47.21  
 W. Lng = 92 06 51

KNBJ.A BMPED20011114ABR  
 Channel = 217C1  
 Max ERP = 100 kW  
 RCAMSL = 713 M  
 N. Lat = 47 42 16  
 W. Lng = 94 39 03

Protected  
 60 dBu

Interfering  
 40 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 269.0                | 083.0000    | 0099.3      | 049.1        | 125.1                | 100.0000    | 0294.5      | 176.0        | 39.2            |
| 270.0                | 083.0000    | 0098.6      | 048.9        | 124.8                | 100.0000    | 0294.5      | 175.6        | 39.3            |
| 271.0                | 083.0000    | 0097.8      | 048.8        | 124.5                | 100.0000    | 0294.5      | 175.2        | 39.3            |
| 272.0                | 083.0000    | 0096.9      | 048.6        | 124.3                | 100.0000    | 0294.2      | 174.9        | 39.4            |
| 273.0                | 083.0000    | 0095.7      | 048.4        | 124.0                | 100.0000    | 0294.2      | 174.6        | 39.4            |
| 274.0                | 083.0000    | 0094.3      | 048.1        | 123.7                | 100.0000    | 0294.2      | 174.4        | 39.5            |
| 275.0                | 083.0000    | 0092.7      | 047.8        | 123.4                | 100.0000    | 0293.9      | 174.3        | 39.5            |
| 276.0                | 083.0000    | 0091.2      | 047.5        | 123.1                | 100.0000    | 0293.9      | 174.1        | 39.5            |
| 277.0                | 083.0000    | 0089.8      | 047.2        | 122.9                | 100.0000    | 0293.9      | 174.0        | 39.5            |
| 278.0                | 083.0000    | 0088.4      | 046.9        | 122.6                | 100.0000    | 0293.9      | 173.9        | 39.6            |
| 279.0                | 083.0000    | 0087.0      | 046.6        | 122.3                | 100.0000    | 0293.5      | 173.8        | 39.6            |
| 280.0                | 083.0000    | 0085.4      | 046.3        | 122.0                | 100.0000    | 0293.5      | 173.8        | 39.6            |
| 281.0                | 083.0000    | 0083.8      | 046.0        | 121.7                | 100.0000    | 0293.5      | 173.8        | 39.6            |
| 282.0                | 083.0000    | 0082.3      | 045.6        | 121.4                | 100.0000    | 0293.3      | 173.8        | 39.6            |
| 283.0                | 083.0000    | 0081.0      | 045.4        | 121.2                | 100.0000    | 0293.3      | 173.8        | 39.6            |
| 284.0                | 083.0000    | 0079.6      | 045.1        | 120.9                | 100.0000    | 0293.3      | 173.8        | 39.6            |
| 285.0                | 083.0000    | 0078.2      | 044.8        | 120.6                | 100.0000    | 0293.3      | 173.8        | 39.6            |
| 286.0                | 083.0000    | 0076.8      | 044.5        | 120.3                | 100.0000    | 0293.3      | 173.9        | 39.6            |
| 287.0                | 083.0000    | 0075.5      | 044.2        | 120.1                | 100.0000    | 0293.3      | 174.0        | 39.5            |
| 288.0                | 083.0000    | 0074.1      | 043.9        | 119.8                | 100.0000    | 0293.3      | 174.1        | 39.5            |
| 289.0                | 083.0000    | 0072.8      | 043.6        | 119.5                | 100.0000    | 0293.3      | 174.2        | 39.5            |
| 290.0                | 083.0000    | 0071.6      | 043.3        | 119.3                | 100.0000    | 0293.4      | 174.3        | 39.5            |
| 291.0                | 083.0000    | 0070.5      | 043.0        | 119.0                | 100.0000    | 0293.4      | 174.5        | 39.5            |
| 292.0                | 083.0000    | 0069.5      | 042.8        | 118.7                | 100.0000    | 0293.4      | 174.6        | 39.4            |
| 293.0                | 083.0000    | 0068.9      | 042.7        | 118.5                | 100.0000    | 0293.7      | 174.6        | 39.4            |
| 294.0                | 083.0000    | 0068.7      | 042.6        | 118.2                | 100.0000    | 0293.7      | 174.6        | 39.4            |
| 295.0                | 083.0000    | 0068.7      | 042.6        | 118.0                | 100.0000    | 0293.7      | 174.5        | 39.5            |
| 296.0                | 083.0000    | 0068.7      | 042.6        | 117.8                | 100.0000    | 0293.7      | 174.5        | 39.5            |
| 297.0                | 083.0000    | 0068.7      | 042.6        | 117.5                | 100.0000    | 0293.7      | 174.4        | 39.5            |
| 298.0                | 083.0000    | 0068.8      | 042.7        | 117.3                | 100.0000    | 0293.9      | 174.4        | 39.5            |
| 299.0                | 083.0000    | 0069.2      | 042.8        | 117.0                | 100.0000    | 0293.9      | 174.3        | 39.5            |
| 300.0                | 083.0000    | 0070.0      | 042.9        | 116.8                | 100.0000    | 0293.9      | 174.1        | 39.5            |
| 301.0                | 083.0000    | 0070.8      | 043.1        | 116.5                | 100.0000    | 0293.9      | 174.0        | 39.5            |
| 302.0                | 083.0000    | 0071.5      | 043.3        | 116.3                | 100.0000    | 0293.9      | 173.9        | 39.6            |
| 303.0                | 083.0000    | 0071.7      | 043.3        | 116.0                | 100.0000    | 0293.9      | 173.9        | 39.6            |
| 304.0                | 083.0000    | 0071.2      | 043.2        | 115.8                | 100.0000    | 0293.9      | 174.1        | 39.5            |

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 305.0                | 083.0000    | 0070.2      | 043.0        | 115.5                | 100.0000    | 0293.9      | 174.4        | 39.5            |
| 306.0                | 083.0000    | 0069.1      | 042.7        | 115.3                | 100.0000    | 0293.7      | 174.8        | 39.4            |
| 307.0                | 083.0000    | 0068.2      | 042.5        | 115.1                | 100.0000    | 0293.7      | 175.1        | 39.3            |
| 308.0                | 083.0000    | 0067.6      | 042.4        | 114.9                | 100.0000    | 0293.7      | 175.4        | 39.3            |
| 309.0                | 083.0000    | 0067.3      | 042.3        | 114.6                | 100.0000    | 0293.7      | 175.6        | 39.3            |
| 310.0                | 083.0000    | 0067.5      | 042.4        | 114.4                | 100.0000    | 0293.3      | 175.7        | 39.2            |

## EXHIBIT # E4

### R.F. RADIATION COMPLIANCE STATEMENT

KNBJ  
Channel 217 – 30 kW H & V  
Bemidji, Minnesota

January 2002

The applicant's proposed power is 100 kW, however another application is pending to use the same antenna in duplex that will raise the total ERP to 200 kW. The proposed antenna will have a center of radiation of 292.6 meters above ground. Using the formulas expressed in the OET Bulletin, No. 65, August 1997, "Evaluating Compliance with F.C.C. Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", published by the Federal Communication Commission's Office of Science and Engineering, the proposed facility is predicted to produce a worst-case maximum R.F. non-ionization radiation level at a position six feet above the tower base (head level - based on the C.O.R. of 285 meters above ground minus 2 meters) of 158.25 microwatts per square centimeter was calculated. This figure is without regard for the antenna's vertical elevation field value toward the nadir, which will cause a reduction in the predicted "worst case" calculations. The proposed tower location will be within a controlled area having a fence and locked gate. The calculated value amounts to only 15.82 percent of the maximum for a controlled area. (1000 microwatts per centimeter maximum.) There will be no other sources of RF radiation on the proposed tower that will significantly add to this calculation.

Since "worst case" calculations were used and since it is well known that the actual RF power density level is considerably reduced at vertical angles toward the nadir the applicant is confident that there will be no exposure at the transmitter site greater than the maximum.

The applicant will protect workers on the tower by either reducing ERP or terminating transmission.

Consequently, it appears that the proposed FM station will be in full compliance with the Commission's rules and regulations with regard to human exposure to radiofrequency electromagnetic fields.