

# **ENGINEERING REPORT**

Auction 83 Translator Application

**File No. BNPFT-20030310BME**

NEW CH300D – Rapid City, SD  
Bethesda Christian Broadcasting

August, 2003

COPYRIGHT 2003

# **TABLE OF CONTENTS**

---

Discussion of Report

**FM Booster/Fill-in Translator Requirements** (See Exhibit 12.3)

**Interference Requirements**

Exhibit 12.1 - Copy of Existing Antenna Structure Registration

Exhibit 12.2 - Vertical Plan of Antenna System and Support Tower

Exhibit 12.3 - Proposed Contour & Primary Station Contour Study

**Contour Overlap Requirements**

Exhibit 12.4 - Tabulation of Proposed Allocation

Exhibit 12.5 - 3<sup>rd</sup> Adjacent Channel Interference Study with KSLT

**TV Channel 6 Protection Requirements** (none required)

**Unattended Operation Requirements** (See Discussion)

**Multiple Translator Requirements** (See Discussion)

**RF Radiation Study Requirement**

Exhibit 16.1 - RF Radiation Study

(Exhibit numbering is in response to FCC Online Form 349, Section III-A)

## **Discussion**

---

This firm has been retained to prepare the required engineering report for an Auction 83 FM Translator Long Form Application filing. This filing is for pending Fill-In Translator Application BNPFT-20030310BME for a new CH300D Fill-in Translator facility for Rapid City, SD. The facility will serve as a Fill-in Translator for FM station KLMP, Rapid City, SD. KLMP operates on Channel 250, 97.9 MHz. The proposed Fill-In Translator will operate on Channel 300D with 250 watts at a max HAAT of 256 meters.

It has been determined the Fill-In Translator may be used in the area without interference to any existing FM broadcast station or translator with the exception of one third-adjacent channel station, KSLT, Rapid City, SD. Allocation details are found in **Exhibit 12.4**. A third adjacent interference study towards KSLT showing a lack of population within the interference area has been included in **Exhibit 12.5**. The translator site is inside the primary contour, and the 1 mV/m (60 dBu) contour does not extend beyond the primary station 1 mV/m contour. A map of the proposed service area in relation to the primary station contour has been included in **Exhibit 12.3**. The proposed operating parameters remain unchanged from the initial Auction 83 filing.

The proposed translator is located within 320 kilometers of the border between the United States of America and Canada. This proposal meets the requirements of 47 C.F.R. §74.1235(d)(3).

The translator will employ a one bay circularly polarized antenna. The antenna will be mounted on an existing tower bearing ASR # 1041927. A copy of the existing Antenna Structure Registration has been included as **Exhibit 12.1**. Data concerning the site was supplied by the applicant and the site owner, and is believed correct.

The proposed facility meets the requirements of the Rules for operation without a licensed operator in attendance. The transmitter site may be reached promptly at all hours and in all seasons. The transmitter will be equipped with proper control and interface circuits which will place the translator in a non-radiating condition in the event the proper incoming signal is absent. The transmitter and controls will be placed in a locked area to prevent unauthorized tampering with the equipment. A person or persons will be assigned to observe the signals of the station each day, and to take corrective action if required. The equipment proposed for operation is listed in the type-approved list of the Commission.

Prompt suspension of the translator operation will be made, in the event of equipment failure that could cause operation outside the specifications of the Rules. The data contained in this report is responsive to the Rules of the Commission, and provides information for FCC Form 349.

## Discussion (continued)

**RADIATION PROTECTION:** The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency radiation. This report section is in response to that provision of the Rules.

The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1307(b)(3) of the Commission's rules. **Exhibit 16.1** provides the details of the study that was made to demonstrate compliance. The facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

***In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.***

**DISTANCES TO CONTOURS:** The following tabulation of the distances to the proposed service contours results from calculations performed in accordance with §73.313(d) and §73.333 Figure 1.

Munn-Reese, Inc. - Coldwater, MI 49036						
N. Lat. = 44 06 52 W. Lng. = 103 14 36						
HAAT and Distance to Contour - FCC Method - 30 Arc Sec.						
AP300 , Bethesda Christian Broadcasti, BNPFT20030310BME						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	1000.3	221.7	0.2500	-6.02	1.000	19.49
030	966.0	256.0	0.2500	-6.02	1.000	20.91
060	970.6	251.4	0.2500	-6.02	1.000	20.73
090	966.4	255.6	0.2500	-6.02	1.000	20.90
120	972.7	249.3	0.2500	-6.02	1.000	20.65
150	982.7	239.3	0.2500	-6.02	1.000	20.24
180	1110.2	111.8	0.2500	-6.02	1.000	13.59
210	1138.6	83.4	0.2500	-6.02	1.000	11.80
240	1208.7	13.3	0.2500	-6.02	1.000	7.09
270	1227.8	-5.8	0.2500	-6.02	1.000	7.09
300	1201.1	20.9	0.2500	-6.02	1.000	7.09
330	1078.1	143.9	0.2500	-6.02	1.000	15.50
Ave El= 1068.59 M HAAT= 153.41 M AMSL= 1222 M						

# Exhibit 12.1 - Copy of Existing Antenna Structure Registration

**Registration Detail**

Reg Number	1041927	Status	Constructed
File Number	A0049436	Constructed	01/01/1980
FAA Study		EMI	No
FAA Issue Date		NEPA	No

**Antenna Structure**

Structure Type TOWER - Free standing or Guyed Structure used for Communications Purposes

**Location** (in NAD83 Coordinates)

Lat/Long 44-06-52.0 N 103-14-38.0 W 1.2 MI NW

City, State RAPID CITY , SD

Center of  
AM Array**Heights (meters)**

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
1198.0	43.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
1241.0	43.0

**Painting and Lighting Specifications**

None

**Owner & Contact Information**

FRN

Licensee ID

**Owner**

WESTERN COMMUNICATIONS INC  
3106 S HWY 79  
RAPID CITY , SD 57701

P: (605)342-7885  
E:

**Contact**

P:  
E:

**Last Action Status**

Status	Constructed	Received	02/23/1998
Purpose	New	Entered	03/13/1998
Mode	Mail In (Manual)		

**Related Applications**

02/23/1998 A0049436 - New (NE)

**Comments****Comments**

None

**Automated Letters**

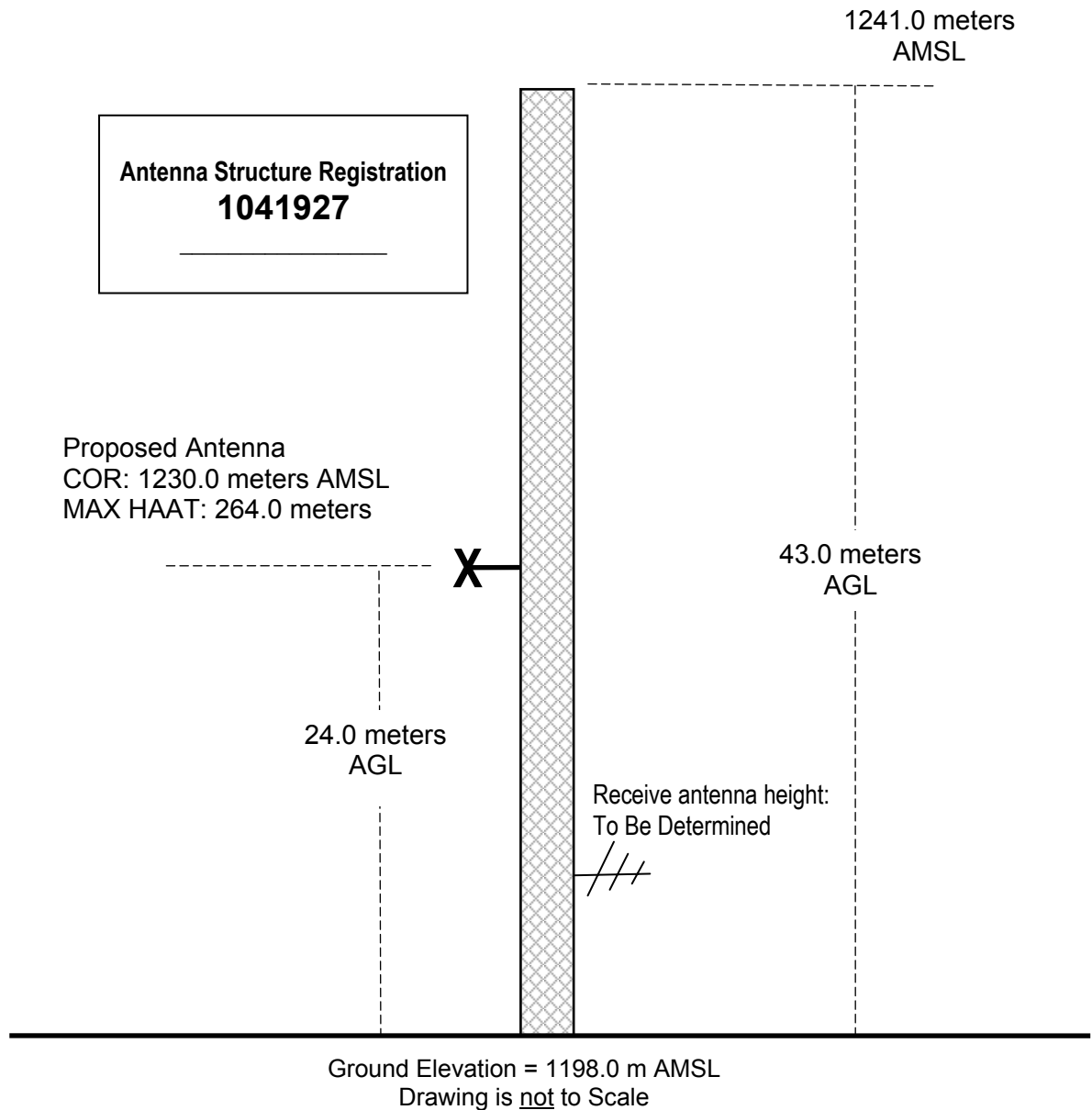
## EXHIBIT 12.2

### VERTICAL PLAN OF ANTENNA SYSTEM

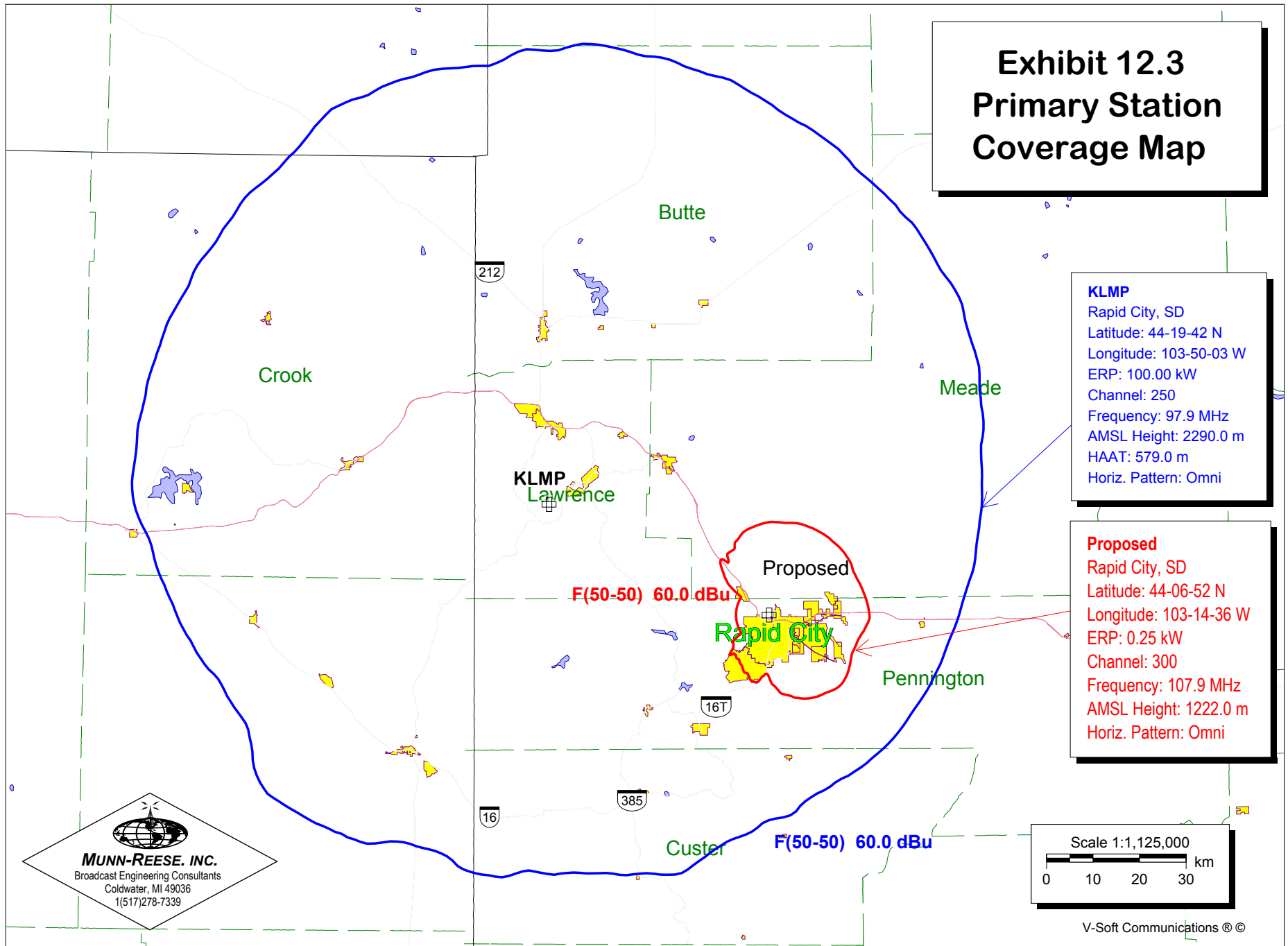
---

This station will rebroadcast a KLMP, Rapid City, SD.

Site Location  
NL: 44° 06' 52"  
WL: 103° 14' 36"



## Exhibit 12.3 Primary Station Coverage Map



# Exhibit 12.4

## Tabulation of Allocation

REFERENCE										CH# 300D - 107.9 MHz, Pwr= 0.25 kW, HAAT=0.0 M, COR= 1222 M		DISPLAY DATES			
44 06 52 N										Average Protected F(50-50)= 7.09 km				DATA 03-22-03	
103 14 36 W										Ave. F(50-10) 40 dBu= 23.8 54 dBu= 10.1 80 dBu= 2.3 100 dBu= 1.1				SEARCH 03-26-03	
-----															
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)						
-----															
300D	BCB1XL	AP C	0.0	0.00	44 06 52	0.250	1222	7.1	-30.85<	-30.85<					
Rapid City		SD	180.0		103 14 36		23.8	Bethesda Christian Broadca							
-----															
<u>297C *KSLT LIC CY 297.0 52.86 44 19 42 100.000 2290 90.3 32.54 -38.50&lt;</u>															
<u>Spearfish SD 117.0 BLH20000609ABG 103 50 03 562 13.2 Bethesda Christian Broadca</u>															
<u>&gt; Reference HAAT at 297.0°= 7.6 M, Pwr= 0.25 kW, Pro. Dist. = 7.09 km, Int Dist. = 1.11 km</u>															
-----															
246C	*KPSDFM	LIC CN	36.3	130.23	45 03 14	100.000	1249	82.1	48.1R	82.1M					
Faith		SD	216.3	BLED19890616KA	102 15 47	432	99.3	State Bd. Of Directors For							
> Reference HAAT at 36.3°= 258.5 M, Pwr= 0.25 kW, Pro. Dist. = 21.01 km, Int Dist. = 22.17 km															
Commercial Channel Operating as Educational															
-----															
*** = ERP and HAAT on direct line to and from reference station. "<" = Contour Overlap															

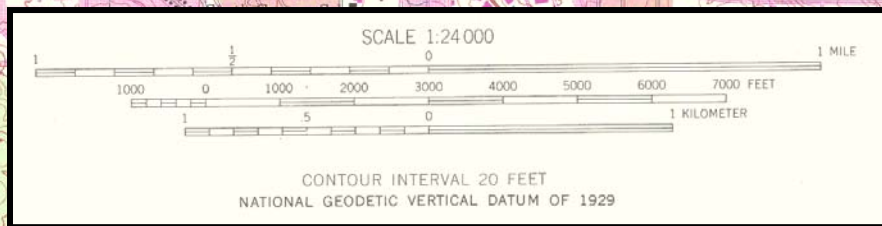
A third Adjacent channel interference study has been included in Exhibit 12.5.



The actual Interference contour has been calculated to be the Proposed 115 dBu F(50:10) contour corresponding to the KSLT 75 dBu F(50:50) contour. This represents the Proposed interference contour which falls wholly within the 40:1 dBu ratio. As seen in the map, there is a lack of population and housing around the remote multiple transmitter site. Tabulations of contours will be supplied upon

## Exhibit 12.5 Third Channel Interference Area with KSLT - Rapid City, SD

115.0 dBu Interference Area



RAPID CITY WEST, S. DAK.  
N4400-W10315/7.5  
1953  
PHOTOREVISED 1978  
AMS 5372 III SE-SERIES V873

RAPID CITY EAST, S. DAK.  
44103-A2-TF-024  
1953  
PHOTOREVISED 1978  
DMA 5372 II SW-SERIES V873