

**June 2010
KXJW Channel 266A
North Rock Springs, WY
Principal Community Coverage Study**

The 70 dBu contour from the proposed facility, as calculated using the standard contour prediction methodology described in §73.313 of the Commission's Rules, does not encompass the entire community of North Rock Springs. However, it is believed that a supplemental showing using alternative contour prediction methodology is justified in this instance in accordance with §73.313(e).

The entire community of North Rock Springs is encompassed by the 60 dBu contour. The attached map exhibits depict the city boundaries of North Rock Springs as taken from the 2000 Census.

Threshold Test for Application of Alternative Contour Prediction Methodology

The instant case satisfies the §73.313(e) requirements for the application of alternative contour prediction methodology in that the terrain in the direction of North Rock Springs departs widely from the average 50 meter delta-h value assumed in the development of the field strength charts in §73.333. The Commission has established guidelines to assist applicants in determining when the terrain "departs widely." See the August 8, 2002, letter to Mark Lipp, Esq., from the Associate Chief, Audio Division, regarding application BPH-20000316ACF for modification of KMAJ-FM at Topeka, Kansas (the "KMAJ-FM Letter"). In the KMAJ-FM Letter, the Commission established that terrain is considered to "depart widely" where the delta-h along the radial has a value of 20 meters or less, or 100 meters or more.

The delta-h value has been calculated in the direction of North Rock Springs, following the instructions presented in §73.313(f) and §73.313(g). Calculation has been made over the radial segment between 10 km and 11.1 km (i.e. the far side of the community), using terrain data extracted every 0.1 km from the 3-arc second terrain database. The result of the calculation is summarized in the following table:

Radial	Radial Segment	10% value	90% value	delta-h
270 deg	10 to 11.1 km	2259 meters	2053 meters	206 meters

The delta-h value in the direction of North Rock Springs is 206 meters, satisfying the Commission's threshold test guidelines for the application of alternative contour prediction methodology.

An alternative prediction methodology has been employed to verify that North Rock Springs will receive 70 dBu service from the proposed facility. All calculations were made using the 3-arc second database in conjunction with the height and ERP specified herein.

Longley-Rice

Study has been made of the predicted 70 dBu field strength over North Rock Springs, using the Longley-Rice v1.2.2 methodology as described in the FCC's Office of Engineering and Technology Bulletin 69, dated July 2, 1997. This study has been conducted using the software program SIGNAL™ from EDX Wireless.

A sample calculation has been made to a location within the community boundary of North Rock Springs to verify the presence of 70 dBu service, using the formula:

$$\text{Field Strength} = \text{Free Space} - \text{Diffraction Loss} - \text{Clutter}$$

$$\text{Where Free Space} = 106.9 + \text{power in dBk} - 20\log(\text{distance in km to point of interest})$$

For the path studied (-3.47 dBk over a 9.0 km path), the result of this calculation is:

Radial	Free Space Field	Minus Diffraction Loss	Yields
270 deg	84.35 dBu	0.00 dB	84.35 dBu

Attached is a plot of the terrain path from the transmitter site to the sample location in North Rock Springs. The attached terrain path plot includes a list of the Longley-Rice study parameters.

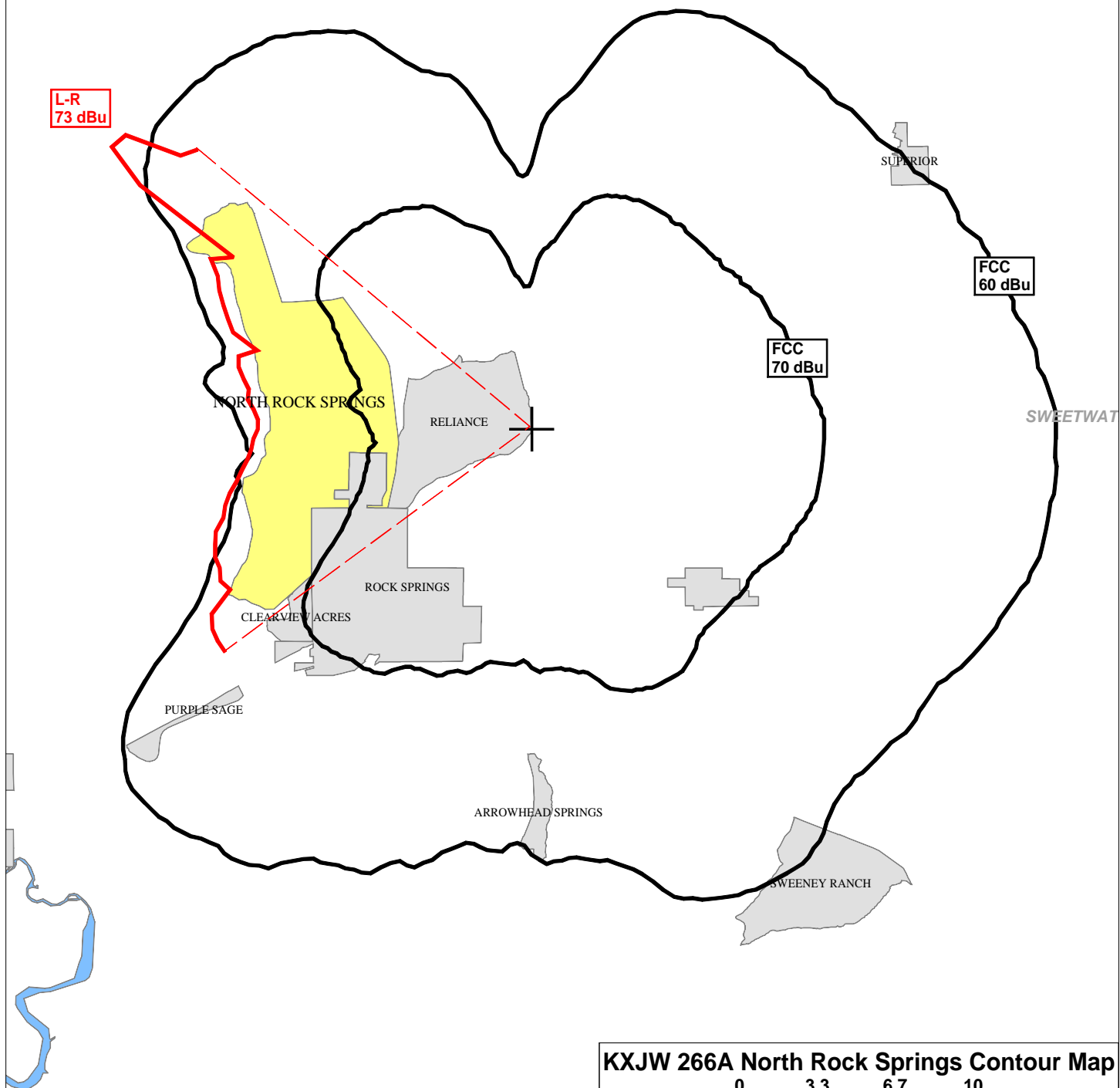
The location of the Longley-Rice contour in the direction of North Rock Springs has been determined for 2-degree increment radials passing through North Rock Springs (starting at 234 degrees and ending at 310 degrees).

Radial	F(50,50) 70 dBu	L-R 73 dBu	L-R exceeds F(50,50) by
234	11.9 km	16.2 km	36.1%
236	11.3 km	16.2 km	43.4%
238	10.6 km	16.1 km	51.9%
240	9.8 km	15.8 km	61.2%
242	9.2 km	14.6 km	58.7%
244	8.8 km	14.8 km	68.2%
246	8.5 km	14.6 km	71.8%
248	8.1 km	14.6 km	80.2%
250	7.8 km	14.4 km	84.6%
252	7.6 km	14.2 km	86.8%
254	7.5 km	13.7 km	82.7%
256	7.3 km	13.5 km	84.9%
258	7.2 km	13.2 km	83.3%
260	7.1 km	12.8 km	80.3%
262	7.1 km	12.5 km	76.1%
264	6.8 km	12.2 km	79.4%

266	6.8 km	12.0 km	76.5%
268	6.8 km	11.9 km	75.0%
270	6.9 km	11.7 km	69.6%
272	7.0 km	11.7 km	67.1%
274	7.2 km	11.9 km	65.3%
276	7.6 km	12.2 km	60.5%
278	7.9 km	12.2 km	54.4%
280	7.8 km	12.5 km	60.3%
282	7.6 km	12.8 km	68.4%
284	7.6 km	12.9 km	69.7%
286	7.7 km	12.2 km	58.4%
288	8.1 km	13.4 km	65.4%
290	8.4 km	13.8 km	64.3%
292	8.6 km	14.2 km	65.1%
294	8.9 km	14.6 km	64.0%
296	9.2 km	14.9 km	62.0%
298	9.6 km	15.5 km	61.5%
300	10.2 km	14.7 km	44.1%
302	10.8 km	19.7 km	82.4%
304	11.0 km	21.6 km	96.4%
306	11.2 km	21.4 km	91.1%
308	11.3 km	19.0 km	68.1%
310	11.4 km	18.6 km	63.2%

The attached map exhibit depicts the results of this analysis as a 73 dBu (chosen to allow for 3 dB of local clutter loss at the receive locations) contour over the span of 234 to 310 degrees.

The Longley-Rice contour encompasses
100% of the population of North Rock Springs.



KXJW 266A North Rock Springs Contour Map

0 3.3 6.7 10
Kilometers

Hatfield & Dawson 6/2010

