Minnesota Public Radio
FCC Form 302-FM
Section II, Question 2
Section III, Questions 7-8

This exhibit provides further information regarding the responses of Minnesota Public Radio ("MPR") to Section II, Question 2; Section III, Question 7; and Section III, Question 8. Each of these questions pertains to compliance with the terms of the underlying construction permit. As indicated in the application, all terms, conditions, and obligations set forth in the underlying construction permit have been fully met, and the facility was constructed as authorized in the underlying construction permit, in compliance with all special operating conditions, terms, and obligations. As detailed below, after commencing program tests, MPR learned that the operation of WMLS and WLSN at full power may have contributed to existing reception problems to a channel 6 translator's input channel co-located with the stations' antenna which receives the signal of its primary station over-the-air using an amplified high-gain antenna.[1] The primary station is located in Duluth, MN, approximately 110 miles from Grand Marias. Thus, the translator is substantially outside of the main station's Grade B contour and is well over the radio horizon. As explained below, MPR has voluntarily taken steps to remedy the reception problems, is committed to reaching a final solution, and expects to achieve full resolution of the issue in the very near future. Currently, MPR is voluntarily operating WMLS and WLSN at reduced power.

In August of 2001, MPR completed construction of the stations, including installation of the four-bay antenna for the operation of WMLS and WLSN. By separate letters for each station dated September 13, 2001, MPR advised the FCC that it intended to commence program tests, in

[1] The translator's receive antenna is also used to deliver the main station's over-the-air signal to a local cable system.

compliance with Section 73.1610 of the Commission's rules and the terms of the construction permits. On September 20, 2001, the stations began program tests. Initial measurements confirmed that WMLS and WLSN were operating at full power in compliance with the terms of their construction permits.

Subsequently, however, MPR discovered problems with the antenna, and therefore began to operate WMLS and WLSN at substantially reduced power to avoid potential damage to the antenna or the transmitter. MPR notified the Commission of this action by letters dated September 26, 2001 and October 25, 2001. Further investigation revealed that the antenna had been improperly assembled at the factory, and, as of November 22, 2001, MPR obtained and installed the correct parts for the antenna and tuned the antenna, allowing the stations to resume full power operation. Measurements taken at that time indicated that WMLS and WLSN were operating within the FCC's limits. Specifically, the harmonics, spurious, and intermodulation products were found to be almost unmeasureable at better than 100 dB below carrier.

Several hours after returning WMLS and WLSN to full power operation, reception problems with the input signal of the co-located channel 6 translator were identified. Even before WMLS and WLSN commenced operations, however, the translator suffered severe reception difficulties. Indeed, the channel 6 translator was operating with intermittent service under the best conditions, with deep fades that caused complete loss of reception lasting up to an hour and shorter, frequently occurring, fades that resulted in poor picture quality. MPR was advised that reception by the translator was "paper thin," and MPR's measurements confirm that the signal is approximately *30 dB below the manufacturer's recommended minimum input level*.

Within one day of discovering the channel 6 translator reception issue, MPR installed a filter on the channel 6 receive antenna, which resulted in some improvement. MPR also replaced

multiple coax cables in the channel 6 building and attempted various grounding schemes. These steps produced some, but not desired, improvements. Additional analysis conducted between November 24 and December 1, 2001 revealed that the channel 6 reception problems were being caused by an intermodulation product that was generated not by WMLS and WLSN, but by the tower itself. Specifically, MPR discovered that the tower had been painted prior to its initial construction in August of 2001, resulting in a thin coating of paint on the mating faces of the tower leg flanges. This provided insulation between the various 20-foot sections of the antenna, resulting in poor grounding. Additionally, paint had not been removed from the mounting hardware used to secure the antenna mounts, contributing further to the reception difficulties of the channel 6 translator. At this time, MPR again notified the Commission that it was attempting to resolve the reception issues, by letters dated November 26, 2001.

On December 10, 2001, an MPR engineer began working with a tower crew to ground the MPR antenna to the tower and to place copper jumpers around the tower leg flanges and in the vicinity of the WMLS/WLSN antenna. This improved reception significantly, and the stations were brought up to 70% power without exacerbating the reception problems of the channel 6 translator. Reception noticeably declined, however, when the tower crew passed by the channel 6 receive antenna, and declined further when the antenna was shaken slightly. In early January, the tower owner agreed to tighten the channel 6 translator receive antenna, which improved the reception to some degree. MPR determined that the unbonded tower sections, and, possibly one or more dirty guy wire joints, were contributing to the channel 6 reception problems.

In the course of investigating potential sources of interference to the channel 6 translator, MPR also learned that an independently owned FM station in Grand Marais, MN, was radiating

a second harmonic within the frequency band of channel 8, which caused some interference to the reception of the channel 6 signal from Duluth. The engineer for that station has acknowledged that some of the white flashes in the channel 6 translator reception are likely the result of his station. MPR is working with this station to remediate the second harmonic problem.

Because of the reception issue, MPR has voluntarily agreed to send, at its own expense, a tower crew to bond all of the tower leg joints and to bond the guy wires to the tower, and to clean and tighten any suspicious metal-to-metal joints. MPR believes that these actions will permit the stations to resume operation at full power without contributing to the reception problems of the channel 6 translator.

MPR respectfully submits that full-power operation of WMLS and WLSN, even if found to contribute to the reception difficulties experienced by the translator (and cable system), is in compliance with the terms of the stations' authorizations and the FCC's rules. The reception problems being experienced at the site do not constitute FM blanketing interference that MPR is obligated to remedy. Section 73.318 of the Commission's rules, which obligates stations to correct FM blanketing interference, specifically excludes "interference complaints resulting from . . . improperly installed antenna systems[ ] or the use of high-gain antennas or antenna booster amplifiers." 47 C.F.R. § 73.318(b). Because the channel 6 translator utilizes a high-gain antenna *and* an amplifier, and the reception problems of the channel 6 translator appear to be the result, at least in part, of the antenna system's installation, any alleged contribution by WMLS/WLSN to the reception problems of the receive antenna is not cognizable interference under Section 73.318. Nevertheless, MPR has voluntarily taken substantial steps, and, indeed,

has in significant part funded efforts, to assist the translator operator in resolving its reception difficulties.

Moreover, full-power non-commercial FM stations are not obligated to protect secondary services, including television translators. This is particularly true when, as here, the translator allegedly experiencing reception problems is located more than 100 miles from the main station whose signal it is attempting to receive, and that signal is being transmitted at a level substantially lower than the manufacturer's recommended power. Indeed, alternative, and far more appropriate, means exist to deliver the channel 6 signal to the translator (and cable system) over such a distance, including fiber and microwave links. Since MPR is providing two new, full-power, over-the-air non-commercial services to the citizens of Grand Marais without causing any interference cognizable under the Commission's rules, a grant of the instant license application will serve the public interest.