

TECHNICAL EXHIBIT

APPLICATION FOR MODIFICATION OF  
FM CONSTRUCTION PERMIT

KCHQ (FM)  
FCC FACILITY ID: 87925

TED W. AUSTIN, JR.

DRIGGS, IDAHO

CH 271C1 15.0 KW 606 M HAAT

FEBRUARY 2003

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**TECHNICAL NARRATIVE**

The technical exhibit, of which this narrative is part, was prepared on behalf of Ted W. Austin, Jr., in support of an application to modify the construction permit of FM Broadcast Station KCHQ(FM), Driggs, Idaho, FCC facility identification number 87925.

**The applicant proposes to specify changes in station class (from Class C3 to Class C1), antenna (center of radiation) height above ground, antenna height above average terrain, effective radiated power, the overall height of the supporting structure, and the antenna/transmitter site location from that previously provided to the Commission.**

The changes proposed herein, in accordance with the Commission's rules, are designated as minor changes to the proposed facility.

The proposed station will operate on FM Channel 271C1 (102.1 MHz) with an effective radiated power of 15.0 kilowatts and an antenna height above average terrain (HAAT) of 606 meters. The proposed station will operate with a **non-directional antenna.**

The proposal would not be subject to environmental processing in accordance with 47 C.F.R. §1.1306. This proposal does not involve a site location specified under 47 C.F.R. §1.1307 (a)(1)-(7), or involve high intensity lighting under 47 C.F.R. §1.1307(a)(8) or result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in 47 C.F.R. §1.1307(b).

This application conforms with all applicable rules and regulations of the Federal Communications Commission. **Exhibit E-4** contains an FM channel separation study, which shows that this proposal meets all required FM spacings in accordance with 47 C.F.R. §73.207, with the exception of a short-spacing to station KBMC, Bozeman, Montana (Channel 271C2). The applicant proposes operation in accordance with 47 C.F.R. § 73.215 (contour protection) to KBMC.

#### **FAA NOTICE OF PROPOSED TOWER CONSTRUCTION (EXHIBIT E-1)**

The Federal Aviation Administration has been notified of this proposal. The notification to the FAA is presented herein as **Exhibit E-1**.

#### **ANTENNA SUPPORTING STRUCTURE & SITE MAP (EXHIBIT E-2 & E-3)**

The proposed transmitting facility will consist of a 6-bay FM antenna side-mounted on a guyed, uniform cross-section, steel tower. **Exhibit E-2** contains a vertical sketch of the proposed antenna location and supporting structure. A large scale topographic map with the proposed site clearly marked upon it is presented in **Exhibit E-3**

The antenna location is uniquely described by the following NAD 27 geographical coordinates:

43° 42' 42" North Latitude  
111° 20' 57" West Longitude.

The transmitter site address (or description) is: north of Ryan's Peak, Teton County, Idaho.

#### **FM SPACING STUDY (EXHIBIT E-4)**

**Exhibit E-4** is an FM spacing study of Channel 271C1 at the proposed transmitter site. As this study shows, the proposed transmitter site meets all requirements for the proposed operation under section 73.215 of the Commission's rules. Exhibit E-4 also contains a FM Channel Study (spacing study) from the proposed allotment point for Channel 271C1. The allotment point and the proposed transmitter site, meet the required city of license coverage requirements of the Commission's Rules.

#### **FCC F(50,50) COVERAGE CONTOURS (EXHIBIT E-5)**

The predicted coverage contours were calculated in accordance with the provisions of 47 C.F.R. §73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers from the proposed site were obtained from the N.G.D.C. 3-second terrain database. The standard eight radials evenly spaced at 45-degree intervals were used for determining the average terrain elevations and the distance to the service contours.

The antenna radiation center heights above average terrain in the individual radial directions and the effective radiated power in the appropriate directions were used in conjunction with the F(50,50) curves of 47 C.F.R. §73.333 to determine the distances to the 70 dBu and 60 dBu contours.

Exhibit E-5 is a map showing the predicted 70 dBu and 60 dBu F(50,50) service contours. As the map in Exhibit E-3 shows, the 70 dBu (3.16 mV/m) contour from this proposal completely encompasses the city of license, Driggs, Idaho.

**OPERATION IN ACCORDANCE WITH 47 C.F.R. § 73.215 IS REQUESTED (EXHIBIT E-6).**

**Exhibit E-4** contains an FM channel separation study, which shows that this proposal meets all required FM spacings in accordance with 47 C.F.R. §73.207, with the exception of a short-spacing to Station KBMC, Bozeman, Montana. The applicant proposes operation in accordance with 47 C.F.R. § 73.215 (contour protection) to this station. **Exhibit E-6**, contains a map upon which the proposed operation and the interference and protected contours to and from station(s) requiring contour protection from this proposal have been drawn. No prohibitive overlap of the protected and interference contours occurs.

**POPULATION AND AREA**

The population to be served within the predicted 60 dBu contour was determined by a computer program that adds the population of census districts whose centroids lie within the contour. The 2000 U.S. Census data was employed. The area within the 60 dBu contour was calculated by a computer program using a root mean square algorithm. The predicted 60 dBu contour encompasses 15,985 square kilometers in which 162,353 persons reside.

**OTHER CONSIDERATIONS**

The "blanketing" contour of a 15-kilowatt FM station extends from the tower site a distance of 1.53 kilometers. The applicant recognizes its responsibility to remedy complaints of blanketing interference as required by 47 C.F.R. §73.318, and to protect existing facilities in accordance with the applicable rules.

No adverse impact (intermodulation or otherwise) on existing facilities or pending applications is anticipated. However, the applicant recognizes its responsibility to correct such matters if they occur as a result of its operation.

### **ENVIRONMENTAL CONSIDERATIONS**

The proposed facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

Power density contributions from the proposed operation were computed using the appropriate equations of the OST Bulletin and the relative field value of the proposed 6-bay antenna at all angles 10 degrees and greater below the horizon. The combined maximum radiated power (H & V) is 30-kilowatts. Using a "conservative" relative field pattern of 0.3 for values all values 10 degrees and greater below the horizon, the power density was computed at a level of 2 meters above ground to be 0.0755 mW/cm<sup>2</sup> or 7.55 % of the recommended limit of 1.0 mW/cm<sup>2</sup> for a controlled area at the base of the tower and 37.75 % of the recommended limit of 0.2 mW/cm<sup>2</sup> for an uncontrolled area. A vertical radiation field pattern is included here in as **Exhibit E-7.**

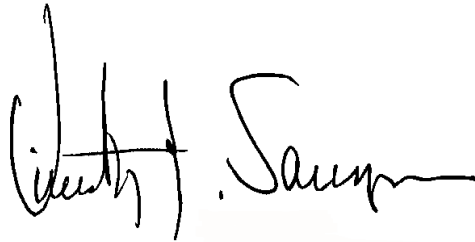
Therefore, at ground level (and 2 meters above), at the base of the tower, the potential for radiofrequency radiation exposure will be well within the FCC guidelines.

The "worst-case" minimum distance from the antenna was computed to be 9.5 meters for a controlled environment. As the minimum distance is more than 27 meters above ground level, no exposure in excess of the guidelines to workers is predicted to occur from this proposal at ground level.

Suitable warning signs and a fence or other devices will be placed at the base of the tower to prevent unauthorized access. If work is required on the tower, the power to the antenna will be terminated or reduced as required. The applicant will fully comply with the provisions contained within the OET bulletin.

Inquiries concerning the technical portion of this application should be directed to the office of the undersigned.

February 13, 2003

A handwritten signature in black ink, appearing to read "Timothy Z. Sawyer". The signature is fluid and cursive, with the first name "Timothy" and last name "Sawyer" clearly distinguishable.

Digitized Signature - Original ON FILE - Timothy Z. Sawyer

Timothy Z. Sawyer

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