

**MODIFY BPH-19971023MD**  
**IDAHO BROADCASTING CONSORTIUM, INC.**  
**KSXZ (FM) RADIO STATION**  
**CH 294C - 106.7 MHZ - 87.0 KW**  
**PINESDALE, MONTANA**  
**January 2002**

**EXHIBIT B**

**Radio Frequency and Environmental Assessment**

Since the proposed KSXZ antenna is to be mounted on a short tower in the vicinity of several other FM and TV stations, a study has been made to determine whether this proposal is in compliance with 47 C.F.R. §1.1307 of the Commission's rules and with OET Bulletin #65, dated August 1997 ("Bulletin"), regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. This study considers all nearby stations and utilizes the appropriate formulas contained in the Bulletin.

**Environmental Analysis**

The proposed KSXZ tower does not involve the use of high intensity white lighting (strobes) in a residential neighborhood. The structure is not located in an officially designated wilderness area or wildlife preserve, nor does it threaten the existence or habitat of endangered species. The facility does not affect districts, sites, buildings, structures or objects significant in American history, architecture, archaeology, engineering or culture that are listed in the National Register of Historic Places, or are eligible for listing, nor does it affect Indian religious sites. Further, the site is not located in a floodplain and did not, to the knowledge of the applicant, require significant change in surface features (wetland fill, deforestation or water diversion) at the time of construction.

## **Radio Frequency Radiation Study**

This radio frequency radiation study is being conducted to determine whether this proposal is in compliance with OET Bulletin Number 65, dated August 1997, regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. This study considers all nearby contributing stations, specifically an application for a new non-commercial FM station on Channel 202C2 ("Channel 202"),<sup>5</sup> KZML, KYSS-FM<sup>6</sup>, KBAZ, KZOQ-FM, KMSO and KREO-FM1, and TV stations KUFM-TV, KUFM-DT, KMMF<sup>7</sup>, a new LPTV station on Channel 19 ("Channel 19"), and a LPTV station on Channel 53 ("Channel 53"), and utilizes the appropriate formulas contained in the OET Bulletin.<sup>8</sup>

It is noted that the proposed location for the KSXZ antenna system is located immediately adjacent to another existing structure, that shares the same geographic coordinates as the proposed site, occupied by some of the other users at the transmitter site. For the purposes of the radio frequency radiation study, all antenna systems on the proposed tower or nearby towers will be considered co-located. The proposed KSXZ site is an established electronics site located atop Mount Dean Stone, at which there are multiple broadcast users. Access to the site is restricted by a locked gate, located 670.6 meters (2,200 feet) from the peak of the site. Access around the gate is not possible due to the terrain approaching Mount Dean Stone. Further, the

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- 5) There is another pending application for the use of Channel 201, which is mutually exclusive with the proposed Channel 202C2. Since the Channel 201 application is closer to the proposed KSXZ site and is considered to be worst case, only it is considered for the RF evaluations.
  - 6) An outstanding construction permit.
  - 7) There is an outstanding construction permit for KMMF and a pending modification application. Only the proposed modification of permit application is considered for this instant review.
  - 8) The contributions of all the FM facilities were calculated using the FM Model program. A single bay EPA dipole antenna was used for calculation purposes, unless otherwise noted. In cases where the antenna type and number of bays was known, this data was used in the FMModel program.

gate is over 800 feet below the peak. As such, the contributions to the general public (uncontrolled environment) will be made at the gated access point. The controlled exposure limits will be calculated at the site, since persons having access to the site are aware of the potential for exposure in a radio frequency radiation environment.

The KSXZ antenna system will be mounted with its center of radiation 34.1 meters (112.0 feet) above the ground at the proposed tower location and operate with an effective radiated power of 87.0 kilowatts in the horizontal and vertical planes (circularly polarized). The proposed KSXZ antenna will be an Electronics Research, Inc., rototiller style system (FCC Type #3) and will be a half wavelength twelve bay antenna. At two meters, the height of an average person, above the ground at the base of the proposed existing tower, the KSXZ antenna system will contribute 0.0163 mw.<sup>9</sup> The KSXZ antenna is located 670.6 meters from the gated access point. Its contribution at this point is 0.0099 mw. Based on exposure limitations for a controlled environment, 1.6% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, 5.0% of the limit is reached.

The proposed Channel 202 antenna is to be mounted at 24.4 meters (80.0 feet) above ground at the tower location and will operate with an effective radiated power of 1.0 kilowatt in the vertical plane. According to the data submitted in BPED-19970716MA, a two bay antenna will be used. At two meters, the height of an average person, above the ground at the base of the

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9) This level of field occurs at 380.9 meters out from the base of the tower and is considered worst case.

tower, the Channel 202 antenna system will contribute 0.0631 mw.<sup>10</sup> At the gated point 670.6 meters away, the Channel 202 contribution is 0.000073 mw. Based on exposure limitations for a controlled environment, 6.3% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, <0.1% of the limit is reached.

The authorized KMZL antenna is mounted at 15.0 meters (49.2 feet) above ground at the tower location and operates with an effective radiated power of 1.0 kilowatt in the horizontal and vertical planes. The KMZL antenna is a Shively, Model 6810, two bay half wavelength spaced system (FCC Type 6). At two meters, the height of an average person, above the ground at the base of the tower, the KMZL antenna system will contribute 0.0095 mw.<sup>11</sup> The KMZL antenna is located 670.6 meters from the gated access point. Its contribution at this point is 0.00014 mw. Based on exposure limitations for a controlled environment, 1.0% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, <0.1% of the limit is reached.

The authorized KYSS-FM antenna is to be mounted at 31.0 meters (101.7 feet) above ground at the tower location and will operate with an effective radiated power of 84.0 kilowatts in the horizontal and vertical planes. The licensee of KYSS-FM has stated that they propose to diplex the permitted facilities of KYSS-FM into the licensed KBAZ antenna system.<sup>12</sup> The KBAZ antenna is a Shively Labs, Model 6810, twelve bay half wavelength spaced system (FCC

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10) This level of field occurs at 4 meters out from the base of the tower and is considered worst case.

11) This level of field occurs at 50.9 meters out from the base of the tower and is considered worst case.

12) The licensee of KYSS-FM and KBAZ are both Capstar TX Limited Partnership.

Type #6). At two meters, the height of an average person, above the ground at the base of the tower, the KYSS-FM antenna system will contribute 0.01853 mw.<sup>13</sup> The KYSS-FM antenna is located 670.6 meters from the gated access point. Its contribution at this point is 0.0098 mw. Based on exposure limitations for a controlled environment, 1.9% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, 4.9% of the limit is reached.

The authorized KBAZ antenna is mounted at 29.0 meters (95.1 feet) above ground at the tower location and operates with an effective radiated power of 85.0 kilowatts in the horizontal and vertical planes. The KBAZ antenna is a Shively, Model 6810, twelve bay half wavelength spaced system (FCC Type 6). At two meters, the height of an average person, above the ground at the base of the tower, the KBAZ antenna system will contribute 0.0216 mw.<sup>14</sup> The KBAZ antenna is located 670.6 meters from the gated access point. Its contribution at this point is 0.0103 mw. Based on exposure limitations for a controlled environment, 2.2% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, 5.2% of the limit is reached.

The authorized KZOQ-FM antenna is mounted at 37.0 meters (121.4 feet) above ground at the tower location and operates with an effective radiated power of 13.5 kilowatts in the horizontal and vertical planes. The KZOQ-FM antenna is a Shively, Model 6810, three bay half wavelength spaced system (FCC Type 6). At two meters, the height of an average person, above

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13) This level of field occurs at 347.4 meters out from the base of the tower and is considered worst case.

14) This level of field occurs at 323.2 meters out from the base of the tower and is considered worst case.

the ground at the base of the tower, the KZOQ-FM antenna system will contribute 0.0304 mw.<sup>15</sup> The KZOQ-FM antenna is located 670.6 meters from the gated access point. Its contribution at this point is 0.00194 mw. Based on exposure limitations for a controlled environment, 3.0% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, 1.0% of the limit is reached.

The authorized KMSO antenna is mounted at 82.0 meters (269.0 feet) above ground at the tower location and operates with an effective radiated power of 14.0 kilowatts in the horizontal and vertical planes. The KMSO antenna is a ERI rototiller type three bay full wavelength spaced system (FCC Type 3). At two meters, the height of an average person, above the ground at the base of the tower, the KMSO antenna system will contribute 0.0153 mw.<sup>16</sup> The KMSO antenna is located 670.6 meters from the gated access point. Its contribution at this point is 0.0014 mw. Based on exposure limitations for a controlled environment, 1.5% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, 0.7% of the limit is reached.

The authorized KREO-FM1 antenna is mounted at 16.0 meters (52.5 feet) above ground at the tower location and operates with an effective radiated power of 0.63 kilowatt in the horizontal and vertical planes. At two meters, the height of an average person, above the ground at the base of the tower, the KREO-FM1 antenna system will contribute 0.1298 mw.<sup>17</sup> The KREO-FM1 antenna is located 670.6 meters from the gated access point. Its contribution at this

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15) This level of field occurs at 101.9 meters out from the base of the tower and is considered worst case.

16) This level of field occurs at 40.2 meters out from the base of the tower and is considered worst case.

17) This level of field occurs at 4.0 meters out from the base of the tower and is considered worst case.

point is 0.00009 mw. Based on exposure limitations for a controlled environment, 13.0% of the allowable limit is reached at two meters above the ground at the base of the proposed tower. For uncontrolled environments, at the gated access point, <0.1% of the limit is reached.

The KUFM-TV Channel 11 antenna system is mounted with its center of radiation 31.0 meters (101.7 feet) above the ground at the existing tower location and operates with an effective radiated power of 9.06 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 29, the typical VHF antenna system has a downward radiation field of 0.2. As such, the KUFM-TV antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.362 kilowatt. At two meters, the height of an average person, above the ground at the base of the tower, the KUFM-TV antenna system will contribute 0.0086 mw. Based on exposure limitations for a controlled environment, 0.9% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. At the gated access point, 670.6 meters, for uncontrolled environments, <0.1% of the ANSI limit is reached.

The authorized KUFM-DT Channel 27 antenna system will be mounted with its center of radiation 27.0 meters (88.6 feet) above the ground at the existing tower location and will operate with an effective radiated power of 50 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the KUFM-DT antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.5 kilowatt. At two meters, the height of an average person, above the ground at the base of the tower, the KUFM-DT antenna system will

contribute 0.0166 mw. Based on exposure limitations for a controlled environment, 0.9% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, at the gated access point, <0.1% of the ANSI limit is reached.

The authorized KMMF Channel 17 antenna system will be mounted with its center of radiation 26.0 meters (85.3 feet) above the ground at the existing tower location and will operate with an effective radiated power of 589 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the KMMF antenna system radio frequency radiation calculations were made based on an effective radiated power of 5.89 kilowatts. At two meters, the height of an average person, above the ground at the base of the tower, the KMMF antenna system will contribute 0.2118 mw. Based on exposure limitations for a controlled environment, 13.0% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, at the gated access point, 0.1% of the ANSI limit is reached.

The proposed LPTV Channel 19 antenna system will be mounted with its center of radiation 30.0 meters (98.4 feet) above the ground at the existing tower location and will operate with an effective radiated power of 20 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the Channel 19 antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.2 kilowatts. At two meters, the height of an average person, above the ground at the base of the tower, the Channel 19 antenna system will



contribute 0.0053 mw. Based on exposure limitations for a controlled environment, 0.3% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, at the gated access point, <0.1% of the ANSI limit is reached.

The proposed LPTV Channel 53 antenna system will be mounted with its center of radiation 59.0 meters (193.6 feet) above the ground at the existing tower location and will operate with an effective radiated power of 9.66 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the Channel 53 antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.097 kilowatts. At two meters, the height of an average person, above the ground at the base of the tower, the Channel 53 antenna system will contribute 0.0006 mw. Based on exposure limitations for a controlled environment, <0.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, at the gated access point, is <0.1% of the ANSI limit is reached.

Combining the contributions of KSXZ, Channel 202, KZML, KYSS-FM, KBAZ, KZOQ-FM, KMSO and KREO-FM1 and TV stations KUFM-TV, KUFM-DT, KMMF, Channel 19 and Channel 53, a total of <45.7 % of the level is reached at the tower base (controlled environment) and <17.6% of the level for uncontrolled environments is reached at the gated access point. Since these levels are below the 100% limit defined by the Commission, the proposed KSXZ facility is believed to be in compliance with the radio frequency radiation

exposure limits as required by the Federal Communications Commission. Further, Idaho Broadcasting Consortium, Inc. ("IBC") will insure warning signs are posted in the vicinity of the tower warning of potential radio frequency radiation hazards at the site. In addition, IBC will reduce the power of the proposed facility or cease operation, in cooperation and coordination with other tower users, as necessary, to protect persons having access to the site, tower or antenna from radio frequency radiation in excess of FCC guidelines. Further, if necessary, IBC will take radio frequency measurements at the site to determine the impact of the KSXZ to the radio frequency radiation environment at the site in order to demonstrate it is within the limits defined by the Commission. Based on the above factors, this proposal is categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

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**EXHIBIT #2**

**Facilities Within Study**

There are several proposed or authorized FM or Television transmitters within 60 meters of this proposal, as detailed further below. There are no known established commercial or government receiving stations or cable head-end facilities within the blanketing contour of the proposed KSXZ. However, within the blanketing contour there are some populated areas. See Exhibit #2A for a detailed FM blanketing study and statement.

There are several authorized or proposed FM and TV transmitters within 10.0 kilometers of this proposal. A complete list of these facilities/proposals is attached as Exhibit #2B. It is the experience of Graham Brock, Inc., that none of the stations listed on Exhibit #2B will, when considered with this proposed facility, produce any third order receiver-induced intermodulation effect ("RITOIE") or be adversely affected as a result of the grant and subsequent operation of KSXZ. In the unlikely event any problems do arise, Idaho Broadcasting Consortium, Inc., will use sound engineering, including, but not limited to, the installation of filters and RF traps, as necessary, to remedy any unexpected RITOIE to the Commission's satisfaction. There are no AM stations within 3.2 kilometers (2.0 miles) of this proposal.