

TECHNICAL EXHIBIT  
AMENDMENT  
APPLICATION FOR MODIFICATION OF  
FM CONSTRUCTION PERMIT  
KCHQ (FM)  
FCC FACILITY ID: 87925  
TED W. AUSTIN, JR.  
DRIGGS, IDAHO  
CH 271C3 7.0 KW -146 M HAAT  
SEPTEMBER 2002

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**SEPTEMBER 2002**

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**CH 271C1 7.0 KW -146 M HAAT**

**SEPTEMBER 2002**

**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 (C1 to C3), antenna (center of radiation) height above ground and height above average terrain, effective radiated power, the overall height of the supporting structure, and the antenna/transmitter site location from those previously provided to the Commission.** The changes proposed herein, in accordance with the Commission's rules, are designated as minor changes to the licensed facility.

The proposed station will operate on FM Channel 271C3 (102.1 MHz) with an effective radiated power of 7.0 kilowatts and an antenna height above average terrain (HAAT) of minus (-) 146 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-3** 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.

#### **FCC TOWER REGISTRATION (EXHIBIT E-1)**

The structure has been registered with the Commission and issued registration number 1231858. The tower does not require lighting or marking. A copy of the registration (record copy only) is presented herein as **Exhibit E-1**.

#### **ANTENNA SUPPORTING STRUCTURE (EXHIBIT E-2)**

The proposed transmitting facility will consist of a 3-bay FM antenna side-mounted on an existing self-supported communications steel tower. **Exhibit E-2** contains a vertical sketch of the proposed antenna location and supporting structure.

The antenna location is uniquely described by the following NAD 27 geographical coordinates, which were converted from NAD83 values (as contained in the tower registration) :

43° 41' 07" North Latitude  
111° 06' 54" West Longitude.

The transmitter site address (or description) is: 242 South 50 West, Driggs, Idaho.

### **FM SPACING STUDY - 271C3 ALLOCATION & SITE (EXHIBIT E-3)**

**Exhibit E-3** is an FM spacing study of Channel 271C3 at the proposed transmitter site. As this study shows, the proposed transmitter site meets all requirements for the proposed operation of the Commission's rules.

### **FCC F(50,50) COVERAGE CONTOURS (EXHIBIT E-4)**

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-4 is a map showing the predicted 70 dBu and 60 dBu F(50,50) service contours. As the map in Exhibit E-4 shows, the 70 dBu (3.16 mV/m) contour from this proposal completely encompasses the city of license, Driggs, Idaho.

### **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 288.9 square kilometers in which 5,809 persons reside.

### **OTHER CONSIDERATIONS**

The "blanketing" contour of a 7-kilowatt FM station extends from the tower site a distance of 1.04 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 3-bay antenna at all angles 15 degrees and greater below the horizon. The combined maximum radiated power (H & V) is 14-kilowatts. Using a "conservative" relative field pattern of 0.4 for values all values 15 degrees and greater below the horizon, the power density was computed at a level of 2 meters above ground to be 0.0928 mW/cm<sup>2</sup> or 9.28 % of the recommended limit of 1.0 mW/cm<sup>2</sup> for a controlled area at the base of the tower and 46.4 % 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-5.**

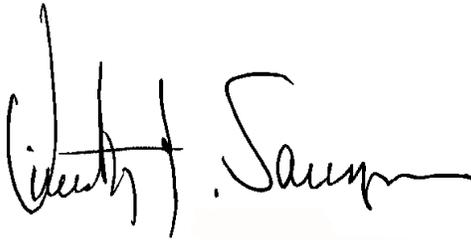
Therefore, at ground level (and 2 meters above), at the base of the tower, the potential for radiofrequency radiation exposure will be well within the FCC guidelines.

The "worst-case" minimum distance from the antenna was computed to be 8.7 meters for a controlled environment. As the minimum distance is more than 21 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.

September 30, 2002

A handwritten signature in black ink, appearing to read "Timothy Z. Sawyer". The signature is fluid and cursive, with a large initial "T" and "S".

Digitized Signature - Original ON FILE - Timothy Z. Sawyer

Timothy Z. Sawyer

***T.Z. Sawyer Technical Consultants***

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**REFERENCE COPY**

**This is not an official FCC authorization. It is a record of public information contained in the FCC's Antenna Structure Registration database on the date that this reference copy was generated. In cases where FCC rules require the presentation, posting, or display of an FCC authorization, this document may not be used in place of an official FCC authorization.**

**United States of America  
Federal Communications Commission**

**Antenna Structure Registration**

**Owner:** Earl's Distributing Inc.

Earl's Distributing Inc. 581 Douglas Avenue Idaho Falls, ID 83401	<b>Registration Number:</b> 1231858
	<b>Issue Date:</b> 01/16/2002
<b>Location of Antenna Structure:</b> 242 South 50 West Driggs, ID	<b>Ground Elevation (AMSL):</b> 1859.5 meters
	<b>Overall Height Above Ground (AGL):</b> 48.2 meters
<b>Latitude:</b> 43-41-06.5 N <b>Longitude:</b> 111-06-56.5 W NAD83	<b>Overall Height Above Mean Sea Level (AMSL):</b> 1907.7 meters
<b>Painting and Lighting Requirements:</b> FCC Paragraphs NONE	
<b>Special Conditions:</b>	

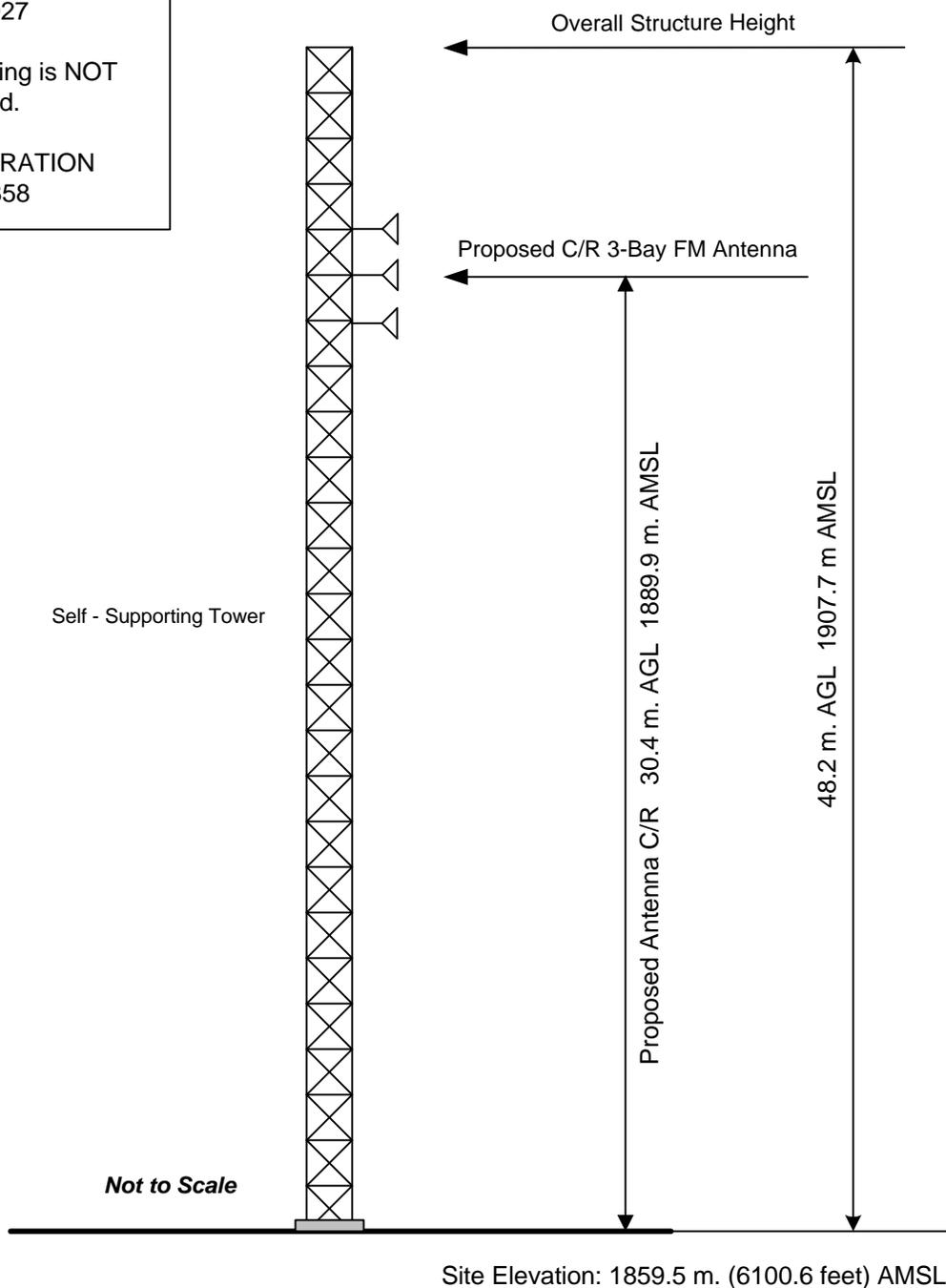
<i><b>T.Z. Sawyer Technical Consultants</b></i>	<b>FCC TOWER REGISTRATION RECORD</b>			
	KCHQ(FM) DRIGGS, IDAHO			<b>Exhibit E-1</b>
BETHESDA, MARYLAND 20816 U.S.A	SIZE A	FSCM NO N/A	DWG NO TWA20020930E1	REV SEP 2002
(c) 2002, ALL RIGHTS RESERVED	SCALE N/A	SEPTEMBER 2002	SHEET	1 OF 1

Site Coordinates:

43° 41 ' 07 " N. Lat.  
 111° 06 ' 54 " W. Lon.  
 NAD 1927

Lighting & Marking is NOT  
 required.

FCC REGISTRATION  
 # 1231858



**T.Z. Sawyer Technical  
 Consultants**

**VERTICAL SKETCH OF ANTENNA / TOWER**

KCHQ (FM) CH. 271C3  
 DRIGGS, IDAHO

EXHIBIT  
 E-2

BETHESDA, MARYLAND U.S.A

SIZE  
 A

FSCM NO  
 N/A

DWG NO  
 TWA20020930-E2

REV  
 SEP 2002

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SCALE  
 N/A

SEPTEMBER 2002

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SEPTEMBER 2002

ALLOCATION & SEPARATION STUDY

Channel 271C3 (102.1 MHz)				Coordinates : 43-41-07 111-06-57			
Call	City	Channel	ERP(kW)	Latitude	Bearing	Dist.	Req.
Status	State	FCC File No.	Freq.	Longitude	deg-Tru	(km)	(km)
KBYR- FM REXBURG		218A	. 100	43- 49- 09	285. 8	55. 60	12
LIC	ID	BLED931215KB	91. 5	111- 46- 51		43. 60	CLEAR
KCVI	BLACKFOOT	268C	100.	43- 30- 03	261. 2	126. 54	96
LIC	ID	BLH940818KE	101. 5	112- 39- 43		30. 54	CLEAR
KMGI	POCATELLO	273C	100.	42- 51- 57	231. 6	145. 43	96
LIC	ID	BLH871216KF	102. 5	112- 30- 46		49. 43	CLEAR

\*\* End of separation study for channel 271C3 \*\*

60 dBu Contour:  
Area: 288.9 sq. km.  
Population 2000 Census: 5,809 persons

**TETON**



Tetonia

60 dBu f(50,50)

Driggs



70 dBu f(50,50)

**1**

Victor



**BONNEVILLE**

**TETON**

Swan Valley



**KCHQ Channel 271C3 (AMENDMENT)**

**Predicted Coverage Contours**

**Driggs, Idaho**

**Kilometers**



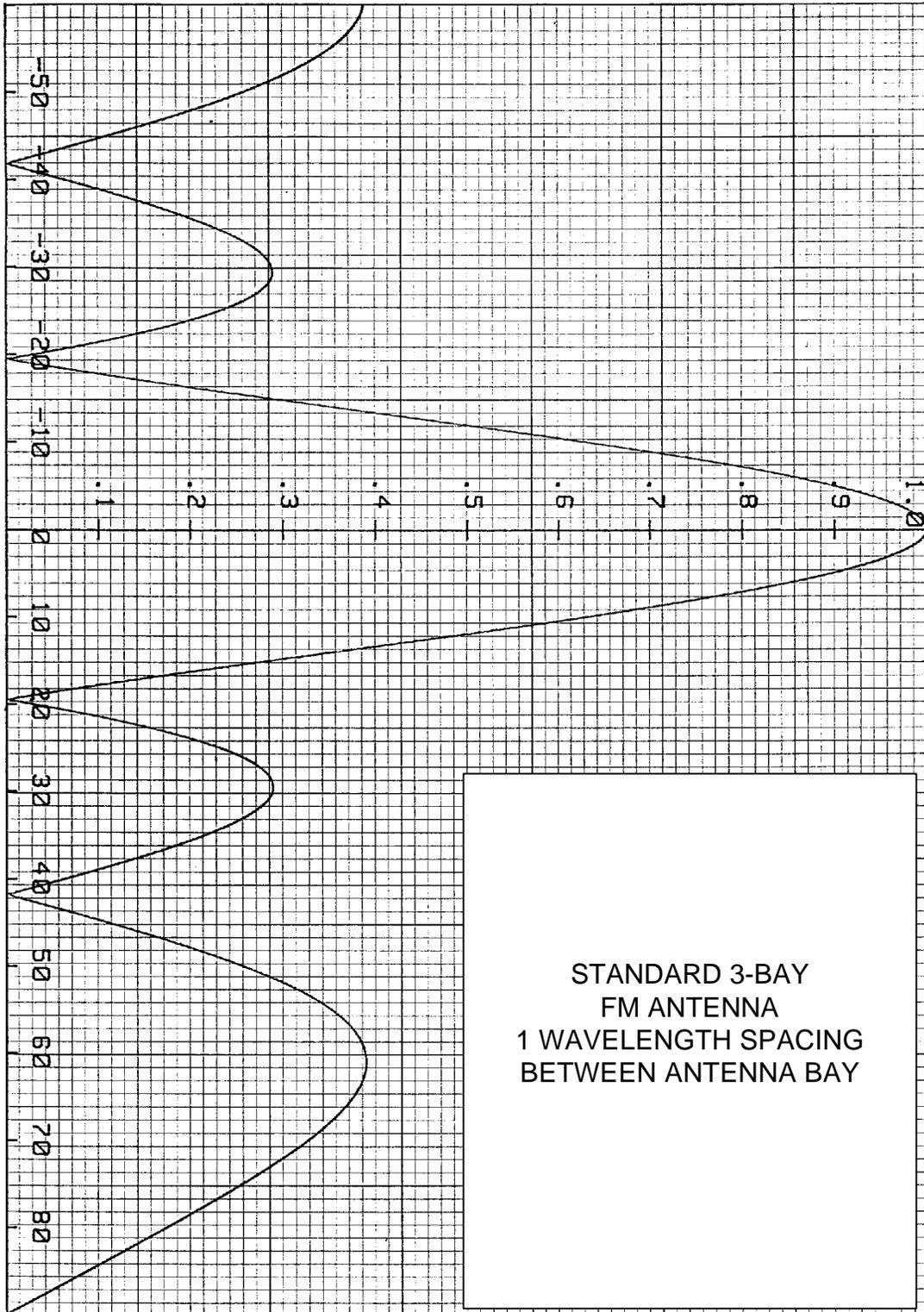
Map Scale: 1: 300,000

Map Source:  
U.S.G.S. Digital Line Graph - 100K Series  
Dept. of Commerce - TigerLine 2000 Digital Data

**Map Legend - Exhibit E-4**

 70 & 60 dBu Service Contours

**1** Transmitter Site



STANDARD 3-BAY  
FM ANTENNA  
1 WAVELENGTH SPACING  
BETWEEN ANTENNA BAY

*T.Z. Sawyer Technical  
Consultants*

**VERTICAL RADIATION PATTERN  
STANDARD 3 BAY FM ANTENNA**

KCHQ(FM)  
DRIGGS, IDAHO

**Exhibit  
E-5**

BETHESDA, MARYLAND 20816 U.S.A

SIZE  
A

FSCM NO  
N/A

DWG NO  
TWA20020930E5

REV  
SEP 2002

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SCALE  
N/A

SEPTEMBER 2002

SHEET

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