

Statement A
COMPREHENSIVE ENGINEERING STATEMENT

prepared for
Big River Public Broadcasting Corporation
K10LJ Galena, AK
Facility ID 11462
Channel 10 0.002 kW

Big River Public Broadcasting Corporation (“*Big River Public Broadcasting*”) is the licensee of Class A television station K10LJ, Facility ID 11462 (file number BLTTV-19811005II). *Big River Public Broadcasting* is hereby submitting a proposal for a flash cut to digital on Channel 10 for K10LJ.

The proposed facility will operate on Channel 10 using a “simple” out of channel emission mask with a directional antenna having an effective radiated power of 0.002 kW. The proposed RF system will utilize the existing antenna, which is a Scala model CA-2, horizontally polarized. **Figure 1** depicts the coverage contours of the licensed analog facility and the proposed digital facility. The proposed antenna will remain side mounted at 19 meters on the existing K10LJ antenna support structure, which is located at 64-45-30.8 N 156-51-49.9 W (NAD83). No increase in overall structure height is necessary for the instant proposal.

Allocation Considerations

The instant proposal complies with the Commission’s interference protection requirements toward all DTV, television translator, LPTV, and Class A stations. A detailed interference study was conducted in accordance with the terrain dependent Longley-Rice point-to-point propagation model, per the Commission’s Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 (“OET 69”)¹. The interference study examined the change in interference as experienced by nearby pertinent stations that would result from the proposed facility.

The results, summarized in **Table I**, show that no new interference is predicted to full power, Class A stations, or to secondary stations. Accordingly, the instant proposal complies

¹ The implementation of OET 69 for this study followed the guidelines of OET 69 as specified herein. **A cell size of 1 km was employed.**

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with §74.793 regarding interference protection to digital television, low power television, television translator, and Class A television facilities.

International Coordination and Other Matters

The proposed facility is located 749.16 km from the nearest U.S. - Canadian border, which is well beyond the coordination distance specified for international coordination. The nearest FCC monitoring station is at Ferndale, WA, at a distance of 2734.54 km from the proposed site. This exceeds by a great margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The proposed site is also located outside the area specified in §73.1030(a)(1). Thus, notification of the instant proposal to the National Radio Astronomy Observatory at Green Bank, West Virginia, is not required. Based on information extracted from the Commission's engineering database, directional AM broadcast station KIYU(AM), 910 kHz, Galena, AK is located 10.24 km from the proposed site.

As described fully above, it is believed that the instant proposal complies with the Commission's allocation Rules and policies.

Environmental Considerations

The instant proposal is not believed to have a significant environmental impact as defined under §1.1306 of the Commission's Rules. Consequently, preparation of an Environmental Assessment is not required. *Big River Public Broadcasting Corporation* herein proposes to construct the flash-cut facility on an existing tower structure, presently authorized for the analog K10LJ facility under BLTTV-19811005II.

The use of existing tower structures has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. No change in structure height is proposed, thus no change in current structure marking and lighting

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requirements is anticipated. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

Human Exposure to Radiofrequency Electromagnetic Field

The proposed operation was evaluated for human exposure to radiofrequency electromagnetic field using the procedures outlined in the Commission's OET Bulletin 65 ("OET-65"). OET 65 describes a means of determining whether a proposed facility exceeds the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

The proposed K10LJ digital flash cut will utilize the existing Scala CA-2 antenna. It will be situated such that its center of radiation will be 19 meters above ground level. According to elevation pattern data provided by the antenna manufacturer, the K10LJ Channel 10 antenna has a maximum relative field of 95 percent from 15 to 90 degrees below the horizontal plane (i.e., below the antenna). Thus, a "worst-case" relative field value of 95 percent is used for purposes of the calculation. The "uncontrolled/general population" limit specified in §1.1310 for Channel 10 (center frequency 195 MHz) is $200 \mu\text{W}/\text{cm}^2$.

OET 65's formula for television transmitting antennas is based on the NTSC transmission standards, where the average power is normally much less than the peak power. For the DTV facility in the instant proposal, the peak-to-average ratio is different than the NTSC ratio. The DTV ERP figure herein refers to the average power level. The formula used for calculating DTV signal density in this analysis is essentially the same as equation (10) in OET 65.

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$$S = (33.4098) (F^2) (ERP) / D^2$$

Where:

- S = power density in microwatts/cm²
- ERP = total (average) ERP in Watts
- F = relative field factor
- D = distance in meters

Using this formula and the above assumptions, the proposed facility would contribute a power density of 0.21 $\mu\text{W}/\text{cm}^2$ at two meters above ground level near the antenna support structure, or 0.1 percent of the general population/uncontrolled limit.

Because there are no other non-exempt emitters in the area, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

Safety of Tower Workers and the General Public

As demonstrated herein, excessive levels of RF energy attributable to the proposal will not be caused at publicly accessible areas at ground level or near the base of the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Nevertheless, tower access will be restricted and controlled through the use of a fence and locked gate. Additionally, appropriate RF exposure warning signs will be posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level, and the base of the tower structure is at the roof level of the television station building, which has secured access and only is accessible to authorized employees and maintenance workers. A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the tower or in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in

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excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines would otherwise be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations.

Conclusion

Based on the preceding, it is believed that the instant proposal complies with all Commission Rules and policies.

FIGURE 1

K10LJ PREDICTED COVERAGE

Prepared November 2015 for

Big River Public Broadcasting Corporation

K10LJ Galena, AK

Channel 10 0.002 kW ERP

Cavell, Mertz & Associates, Inc.

Manassas, Virginia

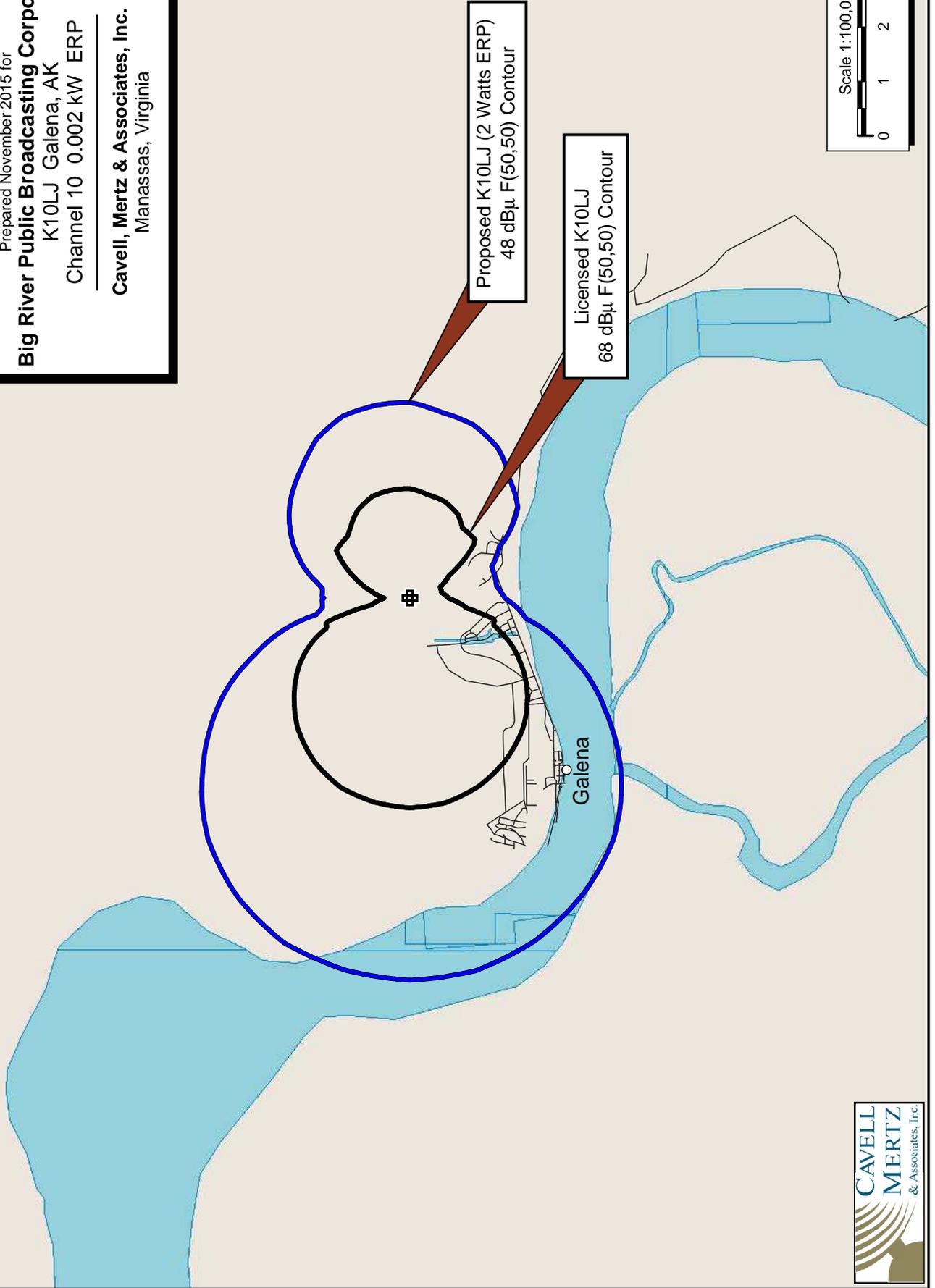


Table I
INTERFERENCE STUDY RESULTS
 prepared for
Big River Public Broadcasting Corporation
 K10LJ Galena, AK
 Facility Id: 11462
 Ch. 10 0.002 kW

<u>Channel</u>	<u>Affected Station</u>	<u>City, State</u>	<u>File Number</u>	<u>Calculated Baseline (2000 Census)</u>	<u>Interference Population without Proposal (2000 Census)</u>	<u>Interference Population with Proposal (2000 Census)</u>	<u>New Interference</u>		
							<u>Population</u>	<u>Percentage</u>	
9	K09RY	Hughes, AK	BDFCDVL-20141118AHH				---	No Interference	---
9	K09RY	Hughes, AK	BLTVL-19811117LE				---	No Interference	---
9	K09QD	Huslia, AK	BLTVL-19811117LC				---	No Interference	---
9	K09QD	Huslia, AK	BDFCDVL-20141118AHV				---	No Interference	---
9	K09TX	Kaltag, AK	BDFCDVL-20141119ABL				---	No Interference	---
9	K09TX	Kaltag, AK	BLTVL-19830412IE				---	No Interference	---
9	K09SA	Koyuk, AK	BDFCDVL-20141215ABC				---	No Interference	---
9	K09SA	Koyuk, AK	BLTTV-19820122IP				---	No Interference	---
9	K09QC	Mcgrath, AK	BDFCDVL-20141219ABS				---	No Interference	---
9	K09QC	Mcgrath, AK	BLTTV-19971229JQ				---	No Interference	---
9	K09RC	Unalakleet, AK	BLTVL-19811117JA				---	No Interference	---
9	K09RC	Unalakleet, AK	BDFCDVL-20141229AGT				---	No Interference	---
10	K10QW-D	Healy, AK	BMPDTV-20121005AAE				---	No Interference	---
10	K10MI	Mckinley Park, AK	BLTTV-19850319IF				---	No Interference	---
10	K10KH	Shageluk, AK	BLTTV-19971229JY				---	No Interference	---
10	K10KH	Shageluk, AK	BDFCDVL-20141230ALP				---	No Interference	---