

July 2009
KQQB-FM1 Booster Channel 283D
Spokane, Washington
Allocation Study

There is sufficient distance between the proposed booster and any first-adjacent channel stations that the field strength of the first-adjacent channel station will be more than 6 dB greater than the booster field strength at all locations within the protected contour of the first-adjacent channel station. The attached spacing study demonstrates compliance with the spacing requirements to facilities and allocations 53 and 54 channels removed from the proposed booster operation.

As demonstrated by the attached allocation study map, the proposed booster 60 dBu contour is completely contained within the 60 dBu contour of the KQQB(FM) licensed facility.

Hatfield & Dawson Consulting Engineers

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SEARCH PARAMETERS

FM Database Date: 090622

Channel: 283A 104.5 MHz

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Latitude: 47 42 3

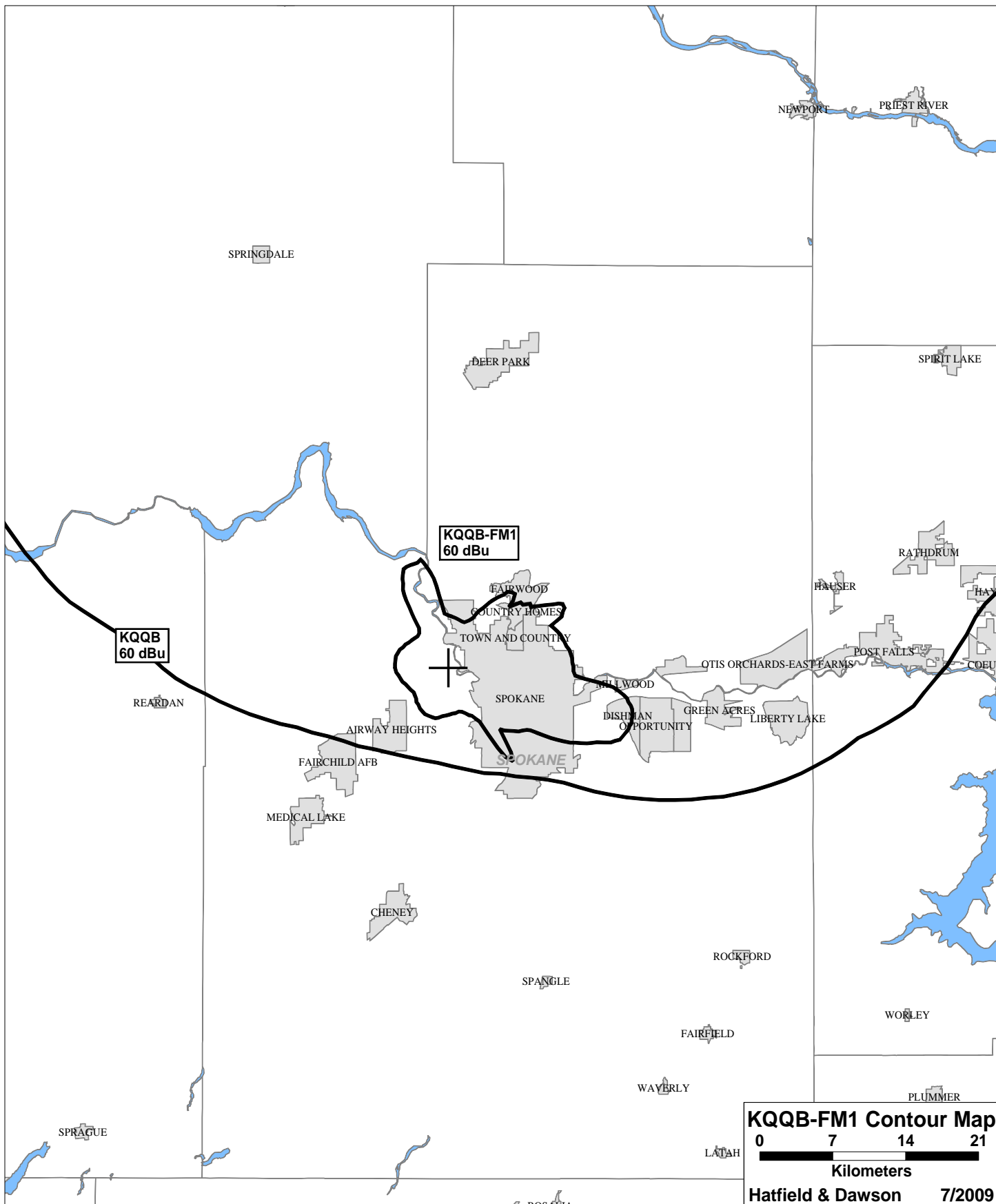
Longitude: 117 30 22

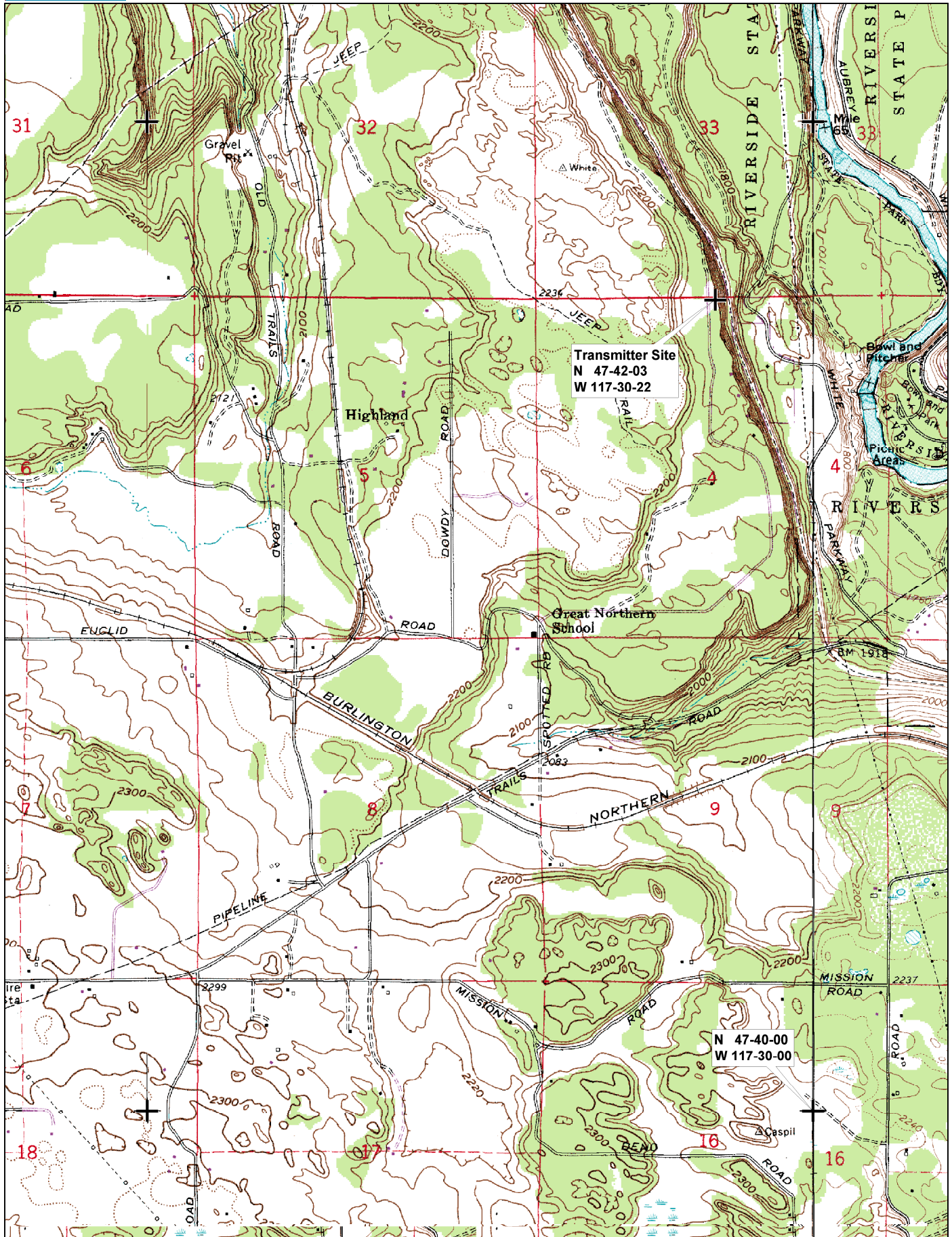
Safety Zone: 32 km

Job Title: KQQB-FM1 AT INDIAN BLUFF

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KDRKaux LIC	SPOKANE WA	BXLH-71105AEY	229C 93.7	0.300 413.0	47-34-38 117-17-54	131.4	20.80 0.00	0 AUX
KDRK-FM LIC	SPOKANE WA	BLH-40728AFM	229C 93.7	64.000 739.0	47-34-14 117-04-55	114.3	35.01 6.01	29 CLOSE
KBBB LIC	SPOKANE WA	BLH-20802AAS	280C1 103.9	39.000 432.0	47-36-04 117-17-53	125.4 SS	19.16 -55.84	75 SHORT
KHTR LIC	PULLMAN WA	BLH-870112KB	282C1 104.3	24.000 509.0	46-48-40 116-54-55	155.5	108.56 -24.44	133 SHORT
K283AT LIC	WALLACE ID	BLFT-70829ADY	283D 104.5	0.005 1031.0	47-33-49 115-50-01	96.3	126.62 0.00	0 TRANS
RSV	NEWPORT WA	RM-9269	283C3 104.5	0.000 0.0	48-09-37 117-01-49	34.6	62.24 -79.76	142 SHORT
KQQB-FM LIC	NEWPORT WA	BLH-31017ACO	283C1 104.5	87.000 DA 319.0	48-23-09 117-14-15	14.6	78.76 -121.24	200 SHORT
KQQBaux LIC	NEWPORT WA	BXLH-50914ABW	283C1 104.5	4.000 DA 79.0	47-41-52 117-31-07	250.0	1.00 0.00	0 AUX
KQQB-FM1 LIC	SPOKANE WA	BLFTB-70914ACH	283D 104.5	4.000 DA 0.0	47-41-52 117-31-07	250.0	1.00 0.00	0 BOOST
RSV	SPOKANE WA	RM-9269	285C2 104.9	0.000 0.0	47-34-45 117-17-48	130.7	20.75 -34.25	55 SHORT
KEEH LIC	SPOKANE WA	BLED-21121AAW	285C1 104.9	10.500 472.0	47-34-45 117-17-51	130.8 SS	20.71 -54.29	75 SHORT

44444 END OF FM SPACING STUDY FOR CHANNEL 283 44444





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KQQB-FM1 Booster Channel 283D
Spokane, Washington
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 283D (104.5 MHz) with a maximum lobe effective radiated power of 2 kilowatts. Operation is proposed with a circularly-polarized Scala CA5-CP antenna. The antenna will be mounted on a 10-foot pipe extending above the roof of the 10-foot transmitter building located at 4700 Indian Bluff Road, overlooking Spokane, Washington. This structure does not require FCC Antenna Structure Registration.

NIER Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\text{mW} / \text{cm}^2) = \frac{33.40981 \times \text{AdjERP}(\text{Watts})}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Calculations of the power density produced by the KMJY-FM1 booster antenna system have been made using the above formula and the manufacturer's vertical plane pattern for the Scala CA5-CP antenna. The results indicate a maximum ground level power density of 1133.1 $\mu\text{W}/\text{cm}^2$, which is 113% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 567% of 200 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments). While these figures are high, it should be noted that the transmitter site is near the edge of a bluff which drops off precipitously in the direction of the main lobe of the antenna, which is highly directional. Therefore, actual exposure levels at the

site are expected to be below the FCC standard for uncontrolled environments. Post-construction measurements will be performed if so required by the Commission.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.

KQQB-FM1 Scala CA5FMCP

ERP	2000 Watts H (avg)	
	2000 Watts V (avg)	
AGL	6 less 2m is	4 meters
Maximum is	1133.10 uW/cm ² at	6 meters

Power Density vs Distance

