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**Engineering Statement  
Displacement of KMNZ-LD  
Channel 31 at Coeur d'Alene, ID  
March 2018**

This Engineering Statement has been prepared on behalf of Spokane Television, Inc. ("STV"), licensee of digital LPTV station KMNZ-LD at Coeur d'Alene, Idaho. This material has been prepared in connection with a displacement application and request for Special Temporary Authority.

**I. Background**

The translator currently operates on a channel above Channel 36, which will be the highest channel remaining for terrestrial television broadcasting per the results of the 2017 spectrum auction. The translator licensee has received a 120-day notice from T-Mobile informing it that the translator station is likely to cause interference in areas where the wireless licensee intends to commence operations or FFA testing. Included with this Engineering Statement is a copy of that notice.

Under these circumstances, CWC respectfully requests a waiver of the Displacement Freeze, in accordance with the procedures announced by Public Notice on June 14, 2017. (See DA 17-584, *Incentive Auction Task Force and Media Bureau Set Forth Tools Available to LPTV/Translator Stations Displaced Prior to the Special Displacement Window*.) Grant of this waiver will allow the station to continue providing service to viewers with as little disruption as possible.

Accordingly, STV is filing both a displacement application, and a request for Special Temporary Authority to begin operations on the requested channel.

## II. Interference Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause interference to any authorized or pending proposed facilities. This study was performed using the Commission's TVStudy software.

It should be noted that this study was conducted using a cell size of 0.5 km and a profile point spacing of 0.2 km.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. Based on the foregoing interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Study created: 2018.03.21 13:59:41

Study build station data: LMS TV 2018-03-20 (103)

Proposal: KMNZ-LD D31 LD APP COEUR D'ALENE, ID  
File number: KMNZ31-1750W  
Facility ID: 167859  
Station data: User record  
Record ID: 459  
Country: U.S.

Build options:

Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	K30MC-D	D30	LD	CP	LEWISTON, ID	BDISDTL20110301ABR	143.3 km
Yes	K30LS-D	D30	LD	LIC	SANDPOINT, ID	BLDTT20110927ADN	66.7
No	K30MJ-D	D30	LD	LIC	LIBBY, MT	BLDTT20111114AUF	119.0
Yes	K40MT-D	D31	LD	APP	BONNERS FERRY, ID	BLANK0000042866	103.8
Yes	K31DS-D	D31	LD	LIC	COOLIN, ID	BLDTT20090807AAM	89.1
No	K31KQ-D	D31	LD	LIC	PLAINS, MT	BLDTT20110425AAV	146.0
No	K31ML-D	D31	LD	CP	WOLF CREEK, MT	BNPDTL20100609AIW	371.6
No	K31GN-D	D31	LD	LIC	LA GRANDE, OR	BLDTT20120625ABL	279.9
No	KONG	D31	DT	LIC	EVERETT, WA	BLANK0000001601	420.6
No	KONG	D31	DT	APP	EVERETT, WA	BPCDT20080617AEE	420.6
No	K31KT-D	D31	LD	LIC	MOSES LAKE, WA	BLDTL20130715ADK	196.7
No	K31AH-D	D31	LD	LIC	OMAK, ETC, WA	BLDTT20110727AHS	207.4
No	K31LU-D	D31	LD	CP	PASCO, WA	BNPDTL20090825AKE	250.8
No	K31KW-D	D31	LD	LIC	RICHLAND, WA	BLDTL20120403ACG	257.4
No	K31KL-D	D31	DC	LIC	WALLA WALLA, WA	BLDTA20091207ADH	224.0
No	K49GF	D31	LD	APP	YAKIMA, ETC., WA	BLANK0000029757	314.2
No	K32HA-D	D32	LD	LIC	BONNERS FERRY, ID	BLDTL20090722ABS	103.8
No	KLEW-TV	D32	DT	LIC	LEWISTON, ID	BLCDT20100111ADM	144.3
Yes	KDYS-LD	D32	LD	LIC	SPOKANE, WA	BLDTL20130506ACL	45.4

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D31  
Mask: Stringent

Hatfield & Dawson Consulting Engineers

Latitude: 47 43 53.60 N (NAD83)  
Longitude: 116 43 50.60 W  
Height AMSL: 1260.9 m  
HAAT: 0.0 m  
Peak ERP: 1.75 kW  
Antenna: JAM-JASS-8/31 270.0 deg  
Elev Pattnr: Generic  
Elec Tilt: 0.75

50.4 dBu contour:  
Azimuth ERP HAAT Distance  
0.0 deg 1.48 kW 502.7 m 51.3 km  
45.0 0.253 397.5 37.2  
90.0 0.085 152.0 21.1  
135.0 0.253 432.9 38.2  
180.0 1.48 519.9 51.8  
225.0 1.55 564.9 53.0  
270.0 1.75 576.1 54.0  
315.0 1.55 565.9 53.1

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m Computed HAAT: 464 m

\*\*Proposal 25.42 dBu contour crosses Canadian border, coordination required  
Distance to Canadian border: 141.0 km

Distance to Mexican border: 1677.1 km

Conditions at FCC monitoring station: Ferndale WA  
Bearing: 289.7 degrees Distance: 451.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 128.4 degrees Distance: 1243.9 km

Study cell size: 0.50 km  
Profile point spacing: 0.20 km

Maximum new IX to full-service and Class A: 0.50%  
Maximum new IX to LPTV: 2.00%

---- Below is IX received by proposal KMNZ31-1750W ----

\*\*MX with BLANK0000042866 APP scenario 1, 31.41% interference received

The interference indicated in the last line of the study is received by the proposed KMNZ-LD facility, and largely in an area which is not the primary market for this station. STV consents to this interference level.

### III. RF Exposure Study

The proposed main lobe ERP is 1.75 kW (H pol) and 1.75 kW (V pol).

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.

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

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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (20.9 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45 and 90 degrees below the horizontal. The calculations in this report assume a worst-case relative field value of 0.100 at these angles, based on the manufacturer's vertical plane pattern for the circularly-polarized Jampro JASS-8/31 antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 35 watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density from the proposed facility is calculated to be 2.7  $\mu W/cm^2$ , which is 0.7% of 381.3  $\mu W/cm^2$  (the FCC maximum for uncontrolled environments at the Channel 31 frequency).

Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. 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 exposure in excess of FCC guidelines.

March 21, 2018

Erik C. Swanson, P.E.