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**Engineering Statement
Displacement of KHBA-LD
Channel 35 at Spokane, WA
February 2018**

This Engineering Statement has been prepared on behalf of He's Alive Broadcasting ("HAB"), licensee of digital LPTV station KHBA-LD at Spokane, Washington. This material has been prepared in connection with an amendment to a displacement application.

I. Background and Waiver Request

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. Termination of operations would need to occur before the Special Displacement Window opens.

Under these circumstances, HAB 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, HAB is filing both a displacement application at 10.7 kW ERP on Channel 35.

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 facilities with which contour overlap exists. This study was performed using the Commission's TVStudy software. Cell size was set at 0.5 km, with terrain increment 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: 2017.08.22 16:55:03

Study build station data: LMS TV 2017-08-22 (33)

Proposal: KHBA-LD D35 LD LIC SPOKANE, WA
File number: KHBA35SWR10_7KW
Facility ID: 7327
Station data: User record
Record ID: 153
Country: U.S.

Build options:
Protect records not on baseline channel

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
KGPX-TV	D34	DT	LIC	SPOKANE, WA	BLANK0000008553	2.2 km
K35IC-D	D35	LD	LIC	BONNERS FERRY, ID	BLDTL20090722ABW	138.2
K35BW-D	D35	LD	LIC	LEWISTON, ID	BLDTT20130730ANN	126.8
KDHW-CD	D35	DC	LIC	YAKIMA, WA	BLDTA20100902AED	270.0
KSKN	D36	DT	LIC	SPOKANE, WA	BLANK0000001266	1.7

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D35
Mask: Stringent
Latitude: 47 34 44.60 N (NAD83)
Longitude: 117 17 54.70 W
Height AMSL: 1174.4 m
HAAT: 0.0 m
Peak ERP: 10.7 kW
Antenna: SWR-SWEDL12WC/35 0.0 deg
Elev Pattn: Generic
Elec Tilt: 0.5

50.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	10.7 kW	491.9 m	62.4 km
45.0	9.56	547.0	63.2
90.0	9.06	273.4	51.5
135.0	3.24	400.6	52.1
180.0	0.472	435.7	41.6
225.0	3.24	483.2	54.9
270.0	9.06	490.7	61.3
315.0	9.56	506.7	62.1

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 454 m

**Proposal 25.77 dBu contour crosses Canadian border, coordination required
Distance to Canadian border: 157.9 km

Distance to Mexican border: 1664.6 km

Conditions at FCC monitoring station: Ferndale WA
Bearing: 293.4 degrees Distance: 417.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 126.2 degrees Distance: 1267.4 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%

Proposal receives 3.98% interference from scenario 1
No IX check failures found.

III. RF Exposure Study

The proposed facility will operate with an ERP of 10.7 kW (H-pol) and 3.6 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 (63 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 0.194 at these angles, based on the manufacturer's vertical plane pattern for the elliptically-polarized SWR SWEDL12WC/35-EP antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 538 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 is calculated to be 4.5 $\mu W/cm^2$, which is 1.1% of 397 $\mu W/cm^2$ (the FCC maximum for uncontrolled environments at the Channel 35 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the

calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

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.

February 12, 2018

Erik C. Swanson, P.E.