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**Engineering Statement  
Digital Flash Cut Application for K25KS  
Channel 25 at The Dalles, OR  
March 2010**

This Engineering Statement has been prepared on behalf of KING Broadcasting Company, licensee of TV translator station K25KS at The Dalles, Oregon. This material has been prepared in connection with an application for digital flash cut.

**I. Allocation 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 SunDTV program from V-Soft Communications and a 1 km grid spacing. The SunDTV program identically duplicates the FCC's OET-69 processing program.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. (It is noted that the attached interference study was performed at a higher power level than is requested in this application.)

Based on the foregoing allocation and interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Summary Study

Census data selected: 2000

Post DTV Transition Database Selected

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Record Selected for Analysis

K25KS USERRECORD-01 THE DALLES OR US  
 Channel 25 ERP 15. kW HAAT 597. m RCAMSL 00981 m STRINGENT MASK  
 Latitude 045-42-43 Longitude 0121-06-58  
 Status APP Zone 2 Border  
 Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.  
 Last update Cutoff date Docket  
 Comments  
 Applicant

Cell Size for Service Analysis 1.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Not full service station

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	51.0 dBu F(50,90) (km)
0.0	15.000	459.5	63.1
45.0	15.000	409.3	60.9
90.0	15.000	471.0	63.5
135.0	15.000	759.0	71.1
180.0	15.000	794.1	71.8
225.0	15.000	736.2	70.6
270.0	15.000	669.1	69.2
315.0	15.000	476.2	63.7

Contour Overlap to Proposed Station

Station  
 K26FG 26 WASCO/HEPPNER OR BLTTL19980903JF

Station inside contour of Digital LPTV station  
 K25KS 25 THE DALLES OR USERRECORD01

Contour Overlap Evaluation to Proposed Station Complete

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance  
 Distance to border = 327.8km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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 Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
25	K25KS	THE DALLES OR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
18	K18HH	THE DALLES OR	0.0	LIC	BLTT	-20070622ABB
24	K04PH	ASTORIA OR	183.2	APP	BDISDTL	-20080819ACU
24	KPWC-LD	FOREST GROVE OR	148.0	CP	BPDTL	-20090203ABG
24	K24DX	PENDLETON, ETC OR	152.4	LIC	BLTTTL	-19960301JB
24	KKEI-CA	PORTLAND OR	128.4	APP	BDISTTA	-20090102ACF
24	K57CH	SUNRIVER OR	206.6	CP	BDISTT	-20070125ADL
24	K57CH	SUNRIVER OR	206.6	CP	BDFCDTT	-20091209ACR
24	NEW	WARM SPRINGS OR	95.2	APP	BNPTTL	-20000831BZN
24	NEW	HERMISTON WA	144.0	APP	BNPDTL	-20090825AFZ
24	K24AI	QUINCY WA	205.2	LIC	BLTT	-19840716IA
24	K24EX	WENATCHEE WA	196.0	LIC	BLTTTL	-20020304AGX
24	NEW	YAKIMA WA	106.8	APP	BNPDTL	-20090825AMM
25	K25JW-D	HUGO, ETC. OR	398.5	CP MOD	BMPDPT	-20080404AAZ
25	NEW	MEDFORD OR	394.6	APP	BNPDTL	-20090825BFN
25	K25GA	REDMOND, ETC. OR	142.5	LIC	BLTTTL	-19990128JD
25	K25GA	REDMOND/PRINEVILLE OR	142.5	CP	BDFCDTL	-20090302AAA
25	K25FG	ROSEBURG OR	326.1	LIC	BLTTTL	-20090310AAZ
25	K25CG	ABERDEEN WA	242.3	CP	BDFCDTT	-20060301ABQ
25	K25CG	ABERDEEN WA	242.4	LIC	BLTT	-19890801IB
25	K25CH	CENTRALIA WA	176.4	LIC	BLTT	-20031124AHA
25	K25FP	ELLENSBURG WA	140.5	CP	BDFCDTL	-20090806AAF
25	K25FP	ELLENSBURG WA	140.5	LIC	BLTTTL	-19971103IP
25	K25CH	NORTH BEND WA	176.4	CP	BDFCDTT	-20060222ABH
25	KMYQ	SEATTLE WA	230.3	APP	BPCDT	-19991022ABF
25	KMYQ	SEATTLE WA	230.3	CP	BPCDT	-20080227AAB
26	K26AY	CORVALLIS, ETC. OR	197.2	LIC	BLTT	-20040909AAB
26	K26JG-D	MADRAS & CULVER OR	142.2	CP	BDCCDPT	-20081205AFJ
26	K58BU	MAUPIN OR	58.6	CP	BDISDPT	-20090824AAE
26	K26GJ-D	PORTLAND OR	115.2	LIC	BLDTL	-20090929AAC
26	K26FG	WASCO/HEPPNER OR	44.2	LIC	BLTTTL	-19980903JF
26	KNDU	RICHLAND WA	159.6	CP MOD	BMPCDT	-20080624AAO
26	K26IV-D	WENATCHEE WA	196.0	CP	BDCCDPT	-20061030AGJ
26	NEW	YAKIMA WA	101.8	APP	BNPDTL	-20090825AND
27	K27DO	BEND, ETC. OR	142.2	LIC	BLTTTL	-19960507JL
27	K54DU	RICHLAND WA	150.4	CP	BPTTL	-20050330AOZ
27	KCWK-LP	YAKIMA WA	102.5	LIC	BLTTTL	-20040122ABW
28	K28JE	BEND OR	184.0	LIC	BLTTTL	-20090324ADJ
28	K28JE	BEND OR	184.8	CP	BPTTL	-20090511AZL
28	K28GD	HEPPNER, ETC. OR	152.4	LIC	BLTT	-20020419ABE
28	K28CQ	HOOD RIVER OR	36.0	CP	BPTT	-20070822AAQ
28	K28CQ	HOOD RIVER, ETC. OR	36.3	LIC	BLTT	-19890324IE
29	K29CI	PRINEVILLE, ETC. OR	168.7	LIC	BLTT	-19911031SK
29	K67AD	THE DALLES OR	0.0	CP	BDISTT	-20071121ACT
29	K63AW	GRAYS RIVER WA	205.2	CP	BDISTT	-20061212ABF
29	K29FF	KENNEWICK, ETC. WA	159.6	LIC	BLTTTL	-20040616AAO
32	K32CC	MONTGOMERY RANCH, ETC OR	206.6	LIC	BLTT	-19881013IC
32	K32DE	PENDLETON, ETC. OR	152.4	LIC	BLTT	-19950127JH
32	K32FN	WENATCHEE WA	182.0	LIC	BLTT	-20030605AEC
33	K33AG	BEND OR	182.4	LIC	BLTTTL	-19871223ID



## II. NIER Study

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (16 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 0.2 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Kathrein 771-304 omnidirectional antenna proposed in this application. This relative field value yields a worst-case adjusted effective radiated power of 96 Watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power level 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  $12.5 \mu\text{W}/\text{cm}^2$ , which is 3.5% of  $359 \mu\text{W}/\text{cm}^2$  (the FCC maximum for uncontrolled environments at the Channel 25 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 radiation in excess of FCC guidelines.

March 25, 2010

Erik C. Swanson, P.E.