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**Engineering Statement**
**Minor Modification Application for K31HK**
**Channel 31 at Rainier, OR**
**February 2007**

This Engineering Statement has been prepared on behalf of Rural Oregon Wireless Television, Inc. ("ROWT"), permittee of TV translator station K31HK. This material has been prepared in connection with a minor modification application.

## 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, with the exception of interference received from a displacement application for Channel 31 at Grays River. ROWT hereby expressly states its willingness to accept the currently-predicted level of interference from the Grays River facility.

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

1990 Census data selected
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 02-22-2007  Time: 17:42:24

Record Selected for Analysis

K31HK  USERRECORD-02  LONGVIEW, ETC,  WA US
Channel 31 ERP 2.2  kW  HAAT  335. m  RCAMSL 00399 m
Latitude 046-09-46  Longitude 0122-51-05
Status APP  Zone 2  Border  Offset -
Dir Antenna Make usr  Model USRPAT02  Beam tilt N  Ref Azimuth 240.
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) | 74.0 dBu F(50,50) (km) |
|---|---|---|---|
| 0.0 | 0.000 | 180.6 | 1.0 |
| 45.0 | 0.014 | 58.1 | 2.2 |
| 90.0 | 0.000 | 171.2 | 1.0 |
| 135.0 | 0.000 | 105.2 | 1.0 |
| 180.0 | 0.159 | 287.5 | 8.4 |
| 225.0 | 1.822 | 300.1 | 16.6 |
| 270.0 | 1.078 | 334.9 | 15.1 |
| 315.0 | 0.000 | 311.5 | 1.0 |

Contour Overlap Evaluation from LPTV Station to Full Service TV & DTV

Station inside contour of station
KPTV  30 PORTLAND  OR BLCDT  20001102AAP

Contour Overlap Evaluation from LPTV to Full Service TV & DTV Complete

Contour Overlap Evaluation from LPTV Station to LPTV Stations

Contour overlap to station
K59BX  31 GRAYS RIVER  WA BDISTT  20060328AGL
Offset Proposed - Offset Protected Z  Required D/U ratio:  28.0

Contour Overlap Evaluation from LPTV to LPTV Stations Complete

Contour Overlap to Proposed Station

Station
K59BX  31 GRAYS RIVER  WA BDISTT20060328AGL  causes

Contour overlap to station
K31HK  31 LONGVIEW, ETC,  WA USERRECORD02
Offset Proposed Z Offset Protected -  Required D/U ratio:  28.0

Contour Overlap Evaluation to Proposed Station Complete

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountian

Proposed facility is within the Canadian coordination distance
Distance to border =  234.5km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

Proposed Station

| Channel | Call | City/State | ARN |
|---|---|---|---|
| 31 | K31HK | LONGVIEW, ETC, WA | USERRECORD02 |

Stations Potentially Affected by Proposed Station

| Chan | Call | City/State | Dist(km) | Status | Application | Ref. No. |
|---|---|---|---|---|---|---|
| 30 | KPTV | PORTLAND OR | 71.7 | LIC | BLCDT | -20001102AAP |
| 31 | K59BX | GRAYS RIVER WA | 63.0 | APP | BDISTT | -20060328AGL |

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Study of this proposal found the following interference problem(s):

NONE.

**II. NIER Study**

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.

$$S(\mu W/cm^2) = \frac{[(0.4)\,VERP + AERP] \times 1.64 \times 2.56 \times 100 \times F^2}{4 \times B \times (Distance)^2}$$

Where: VERP = total peak visual ERP in Watts
AERP = aural ERP in Watts
F = relative field factor in the downward direction
Distance = distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (13 meters below the antenna radiation center). The calculations in this report assume a peak effective radiated power of 88 Watts straight down. This power level corresponds to a relative field value of 0.2, which is the maximum relative field value below 45 degrees based on review of the manufacturer's vertical plane relative field pattern for the Kathrein/Scala 1X1KBBU (Kathrein K723147 panel) antenna. Assuming an average effective radiated power of 44 Watts, 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 8.7 µW/cm², which is 2.3% of 382 µW/cm² (the FCC standard for uncontrolled environments at the Channel 31 visual carrier 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 1000 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 non-ionizing radiation at this site is required in this application.

Public access to the transmitter site is restricted. 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.

February 26, 2007

Erik C. Swanson