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Engineering Statement
Displacement Application for K54GS Puyallup, WA
For Operation on Channel 49+
December 2005

This Engineering Statement has been prepared on behalf of KIRO-TV Holdings, Inc., licensee of TV translator station K54GS at Puyallup, Washington. This material has been prepared in connection with a displacement application for this facility, which presently operates on Channel 54, outside the "core" television spectrum of Channels 2 through 51. Operation is proposed on Channel 49+.

I. Allocation Study

Analog Cochannel

Study has been made of all cochannel analog operations within 400 km of the proposed Ch. 49+ operation. There are no authorized analog cochannel facilities close enough to require detailed study.

It should be noted that the proposed operation is within the Canadian border zone. The proposed operation is with 0.1 kW of transmitter power. Furthermore, the 19 dBu F(50,10) contour does not overlap Canadian land area, thereby demonstrating protection to Canadian allotments and stations.

Analog First-Adjacent

There are no first-adjacent-channel analog facilities close enough to require detailed study.

Analog N+7

Analog television station KWDK-TV on Channel 56 is located 43 km from the proposed translator facility. Please see below for a Longley-Rice study demonstrating interference protection to KWDK-TV.

Analog N-14 and N-15

There are no N-14 or N-15 analog facilities close enough to require detailed study

Protection of Digital Stations and KWDK-TV Ch. 56

With regard to first-adjacent-channel digital stations KING-DT Ch. 48 Seattle and KWOX-DT Ch. 50 Bellevue, and KWDK-TV Ch. 56 Tacoma, a detailed Longley-Rice interference study has been conducted to demonstrate that the proposed operation will not cause interference to those facilities.

The time-shared "HDTV" computer program offered by the National Telecommunications and Information Administration's *TA Services* in Boulder, Colorado was employed as the method for coverage and interference protection. The HDTV computer program has been developed in close coordination with the Commission's OET staff, and utilizes similar methodology as the computer program used by the Commission to develop the DTV Table of Allotments. Predictions included "clipping" the extent of protected coverage as specified under §73.623(c)(2) at the Grade B contour distance for analog stations, at the 74 dBu contour distance for UHF translators, and at the DTV coverage contour distance for DTV assignments per §73.625(b). It is believed that the HDTV program offered by *TA Services* is compliant with the FCC's OET Bulletin 69 Longley-Rice Methodology for Evaluating TV Coverage and Interference ("OET-69").

Study was made using the Puyallup Ch. 49+ technical facility described herein, including the proposed horizontal pattern. The vertical pattern used comports with the Commission's Report and Order in MB Docket No. 03-185, released on September 30, 2004.

The results indicate that the proposed Puyallup Ch. 49+ facility is predicted to cause at worst only *de minimus* interference to the digital television stations. Specifically, no interference is predicted to be caused to KING-DT, KWOX-DT, or KWDK-TV.

Conclusions

Based on the foregoing allocation and interference study, it is believed that the proposed Puyallup Ch. 49+ facility can operate without risk of interference to other stations.

II. NIER Study

There are no other broadcast users of this site. Therefore, precise calculations are made only with regard to the levels from this proposal.

Power density levels produced by the proposed Channel 49 translator were calculated for an elevation of 2 meters above ground (22 meters below the antenna radiation center). The "worst-case" calculations in this report assume that the antenna will radiate 100% power straight down. Assuming an average effective radiated power of 1100 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 $75.9 \mu\text{W}/\text{cm}^2$, which is 17% of $454 \mu\text{W}/\text{cm}^2$ (the FCC maximum at the Channel 49 visual carrier frequency for uncontrolled environments).

In reality, the ground-level exposure levels from the antenna to be used are expected to be much lower.

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 site and tower will be posted with warning signs.

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.

December 15, 2005

Erik C. Swanson



