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**Engineering Statement**  
**Displacement Application for K54AO Bremerton, WA**  
**For Operation on Channel 26-**  
**December 2005**

This Engineering Statement has been prepared on behalf of KIRO-TV Holdings, Inc., licensee of TV translator station K54AO at Bremerton, 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 26-.

**I. Allocation Study**

**Analog Cochannel**

Study has been made of all cochannel analog operations within 400 km of the proposed Ch. 26- 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 the CBUFT Channel 26z operation at Vancouver, British Columbia, and to the Channel 26 LPTV operation at Keremeos/Olalla, British Columbia.

### **Analog First-Adjacent**

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

### **Analog N+7**

Analog television station KWPX-TV on Channel 33 is located 59 km from the proposed translator facility. Please see below for a Longley-Rice study demonstrating interference protection to KWPX-TV.

### **Analog N-14 and N-15**

N-14 and N-15 protections are inapplicable to Channel 26.

### **Protection of Digital Stations and KWPX-TV Ch. 33**

With regard to first-adjacent-channel digital stations KTWB-DT Ch. 25 Seattle and KBTC-DT Ch. 27 Tacoma, and KWPX-TV Ch. 33 Bellevue, 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 Bremerton Ch. 26- 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 Bremerton Ch. 26- facility is predicted to cause only *de minimus* interference to the digital television stations. Specifically, no interference is predicted to be caused to KTWB-DT or KBTC-DT. Interference is predicted to 1039 persons served by KWPX-TV, but this figure is less than 0.5% of the population served by that station and therefore considered to round to zero per Commission policy.

## **Conclusions**

Based on the foregoing allocation and interference study, it is believed that the proposed Bremerton Ch. 26- 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 26 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 21% of  $362 \mu\text{W}/\text{cm}^2$  (the FCC maximum at the Channel 26 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



