FIGURE 43

COMPLIANCE WITH RADIOFREQUENCY RADIATION GUIDELINES

The proposed KNWS-DT installation will be co-located with numerous other broadcast facilities. Several television stations have already been authorized to use this location, and more stations are expected in the future. The site will, therefore, be considered a "multiple use" site.

The proposed KNWS-DT antenna will be a Model RD32UOM manufactured by RFS Broadcast. The antenna will be mounted with its center of radiation 571 meters above ground, making it 569 meters above an observer on the ground, who is assumed to be 2 meters tall. A maximum effective radiated power of 1,000 kW (1,000,000 watts) has been proposed. The addition of this antenna will not require any alteration of the Antenna Structure Registration data for this site.

Equation 10 of OET Bulletin No. 65 can be used to predict the potential exposure to radiofrequency radiation for human observers on the ground as indicated by total power density expressed in units of μW/cm². This equation states:

$$S = \frac{33.4(F^2)ERP}{R^2}$$

where: S = Total Power Density in units of μW/cm²
F = Relative Field of Pattern
ERP = Effective Radiated Power in Watts
R = Distance in Meters

In the case of the instant application, a relative field value of 0.2 was used as a "worst case" scenario. This value was selected even though the data from the antenna manufacturer lists far lower relative field values for all depression angles that would place an observer near the base of the tower. The ERP was set equal to 1,000,000 watts, and a distance of 569 meters was used, which would be the antenna height above a 2 meter tall observer standing at the base of the tower. This is also the shortest possible distance from an observer on the ground to the antenna. Solving the above equation for S yields a total power density of 4.1265 μW/cm².

At Channel 52, the FCC guideline for uncontrolled environments is found by dividing the center frequency of the channel, 701 MHz, by 1500. This gives a maximum allowable exposure of 0.4673 mW/cm², or 467.3 μW/cm². Thus, the maximum predicted total power density from the KNWS-DT installation will be 0.88% of the limit for uncontrolled environments. At this frequency, the limit for uncontrolled environments is one-fifth of the limit for controlled environments. Therefore, the predicted exposure level is 0.18% of the limit for controlled environments.

Chapter 47 of the Code of Federal Regulations, §1.1307(b)(3) states: *"In general, when the guidelines specified in §1.1310 are exceeded in an accessible area due to the emissions from multiple fixed transmitters, actions necessary to bring the area into compliance are the shared responsibility of all licensees whose transmitters produce, at the area in question, power density levels that exceed 5% of the power density exposure limit applicable to their particular transmitter or field strength levels that, when squared, exceed 5% of the square of the electric or magnetic field strength limit applicable to their particular transmitter. Owners of transmitter sites are expected to allow applicants and licensees to take reasonable steps to comply with the requirements contained in §1.1307(b) and, where feasible, should encourage co-location of transmitters and common solutions for controlling access to areas where the RF exposure limits contained in §1.1310 might be exceeded."* Should the level of radiofrequency radiation at the proposed "multiple use" site ever exceed the FCC guidelines, the proposed KNWS-DT facility is categorically exempt from responsibility for bringing the shared transmitter site into compliance because its contribution is less than 5.0% of the applicable limit.

The facility will be properly marked with signs, and entry will be restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed. In the event work would be required in proximity to the antenna such that the person or persons working in the area would potentially be exposed to fields in excess of the guidelines, the station will cooperate with other licensees at the site to reduce power or cease operation during the critical period.