LIEBERMAN & WALISKO
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701 YEATMAN PARKWAY
SILVER SPRING, MD 20902

KQMA - East Porterville, CA

Engineering Exhibit 13

The following equation was extracted from OST Bulletin #65 and was used to determine radiation levels at ground level and at 2 meters above the ground for the specified antenna configurations:

$$S = \frac{(2.56)(1.64)(f^2)[(2000+2000)](1000)}{4\Pi(R^2)}$$

where: S = power density (mW/cm^2)

F = relative field factor in downward direction

R = distance to the center of radiation (cm)

The maximum allowable radio frequency radiation at frequencies between 30 and 300 MHz is 1.0 mW/cm^2 according to the radio frequency protection guidelines contained in the ANSI C95.1-1982 standard (American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz).

The following variation of the above equation was used to determine the distance from the bottom of radiation of specified antenna configurations to the maximum allowable radiation level of 1.0 mW/cm^2:

$$R = \sqrt{\frac{(2.56)(1.64)(0.15^2)[(2000+2000)](1000)}{4\Pi(S^2)}}$$

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Engineering Exhibit 13 (Cont'd)

2 meters above ground level

$$S_{2mAGL} = \frac{(2.56)(1.64)(0.15^2)[(2000+2000)](1000)}{4\Pi(1030^2)}$$

$$S_{2mAGL} = 0.0283 mW/cm^2$$

For ground level

$$S_{Ground} = \frac{(2.56)(1.64)(0.15^2)[(2000+2000)](1000)}{4\Pi(1230^2)}$$

$$S_{Ground} = 0.0199 mW/cm^2$$

Calculations to determine the height on the tower above which the ANSI maximum allowable radiation level of 1 mW/cm^2 would be exceeded.

$$R = \sqrt{\frac{(2.56)(1.64)(0.15^2)[(2000+2000)](1000)}{4\Pi(0.2 mW/cm^2)}}$$

$$R = 867.0182 \text{ cm} = 8.67 \text{ m below } 0.2 \text{ mW/cm}^2$$

The distance from the middle element to the point of maximum radiation would be 8.67 meters from the antenna for 200 mW/cm^2 and 1.73 meters for 1 mW/cm^2. At that point, power to the antenna will be curtailed should a tower climber be present. The site is on private property and will be fenced and signed.