KAOX-FM 297C1 Kemmerer, Wyoming
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 297C1 (107.3 MHz) with an effective radiated power of 100 kilowatts. Operation is proposed with an 8-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on a uniform cross-section guyed tower to be located at Quealy Peak. This site is also used by KDWY 287C2 Diamondville.

Notice of the proposed tower construction has been filed with the Federal Aviation Administration on FAA Form 7460-1. Upon receipt of the FAA's determination of no hazard, FCC Antenna Structure Registration for the tower will be filed on FCC Form 854, and the resulting Antenna Structure Registration Number will be promptly supplied to the Audio Services Division.

NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no likely sources of non-ionizing radiation other than KAOX and KDWY. Thus, the ground level NIER values near the base of the proposed structure are believed to be negligible. Precise calculations are made only with regard to the levels from this proposal and KDWY.

The power density calculations shown below were made using the techniques outlined in the EPA report titled: *An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM, and TV Broadcast Services* (Gailey & Tell, April, 1985). All calculations contained herein are based on the measured element patterns for the antenna, and follow the procedure shown in the Gailey and Tell report. The patterns were identified by applying the procedure outlined in the report to the measurement data contained in the report titled: *Element Pattern Measurements on FM Antennas* (EPA-520/ 6-85-107, June 1985).

"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. Equation #1, contained in the Gailey & Tell report and shown below, was

used to calculate the ground level power density figures from each antenna at incremental distances from the base of its supporting tower.

$$S(\mu W/cm^2) = \frac{(\text{Adjusted ERP in Watts}) \times 1.64 \times 2.56 \times 100}{4 \times \pi \times (\text{Distance})^2}$$

Where: Adjusted ERP in Watts is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

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.

Calculations of the power density produced by the proposed KAOX antenna system assume a Type 3 element pattern, which is the element pattern for the ERI antenna proposed for use. The highest calculated ground level power density occurs at a distance of 10 meters from the base of the antenna support structure. At this point the power density is calculated to be 300.3 $\mu W/cm^2$.

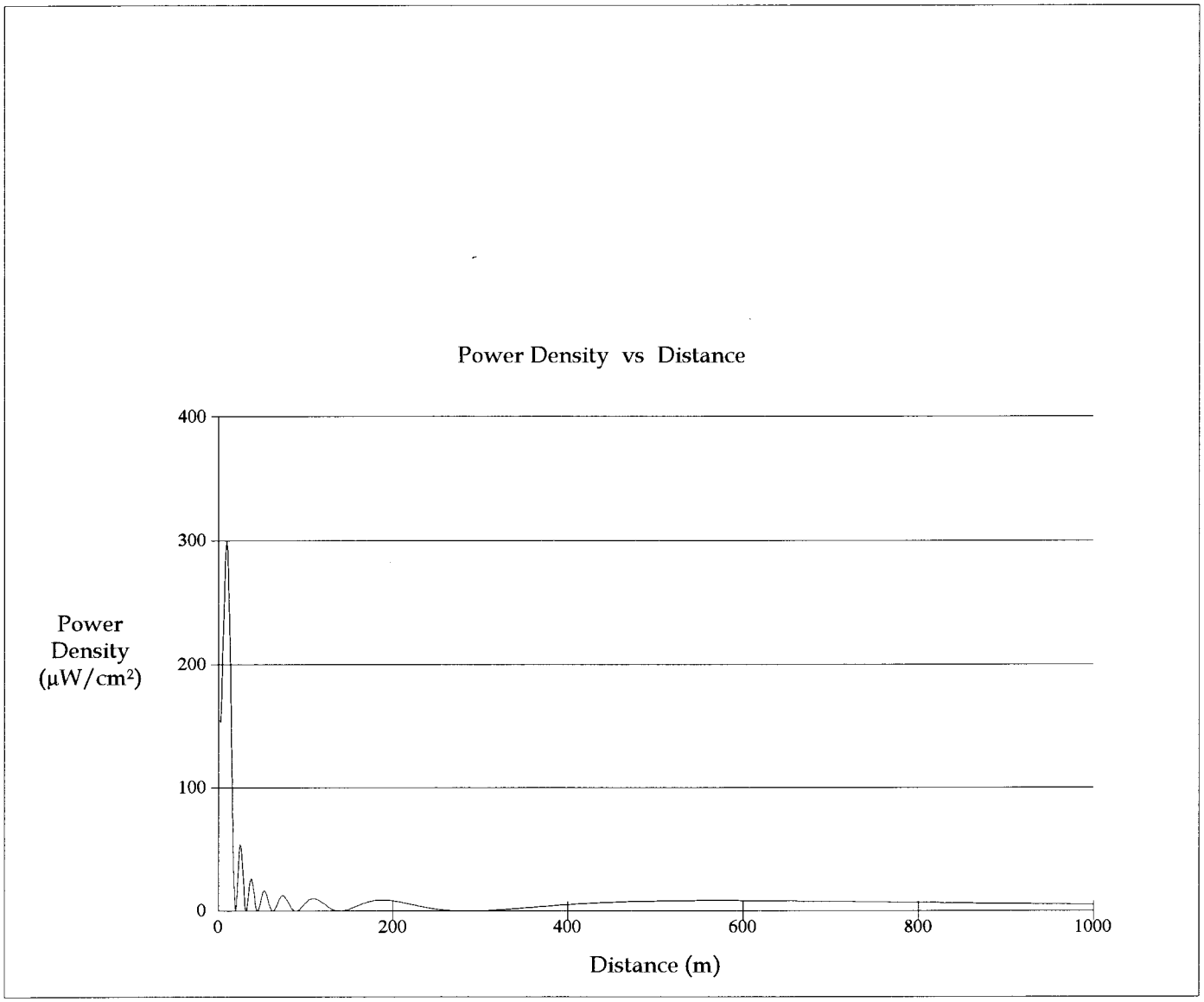
Calculations of the power density produced by the KDWY antenna system assume a Type 2 element pattern, which is the element pattern for the SWR FM10/6 HWS antenna used by that station. The highest calculated ground level power density occurs at a distance of 30 meters from the base of the antenna support structure. At this point the power density is calculated to be 42.9 $\mu W/cm^2$.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KAOX and the present operation of KDWY is

343.2 FW/cm^2, 34% of 1000 FW/cm^2 (the FCC standard for controlled environments such as this one).

Quealy Peak is an isolated transmitter site located in rugged terrain, and is inaccessible to the general public. There is a locked gate on the unimproved access road, and the antenna tower is posted with warning signs. Pursuant to OST 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.

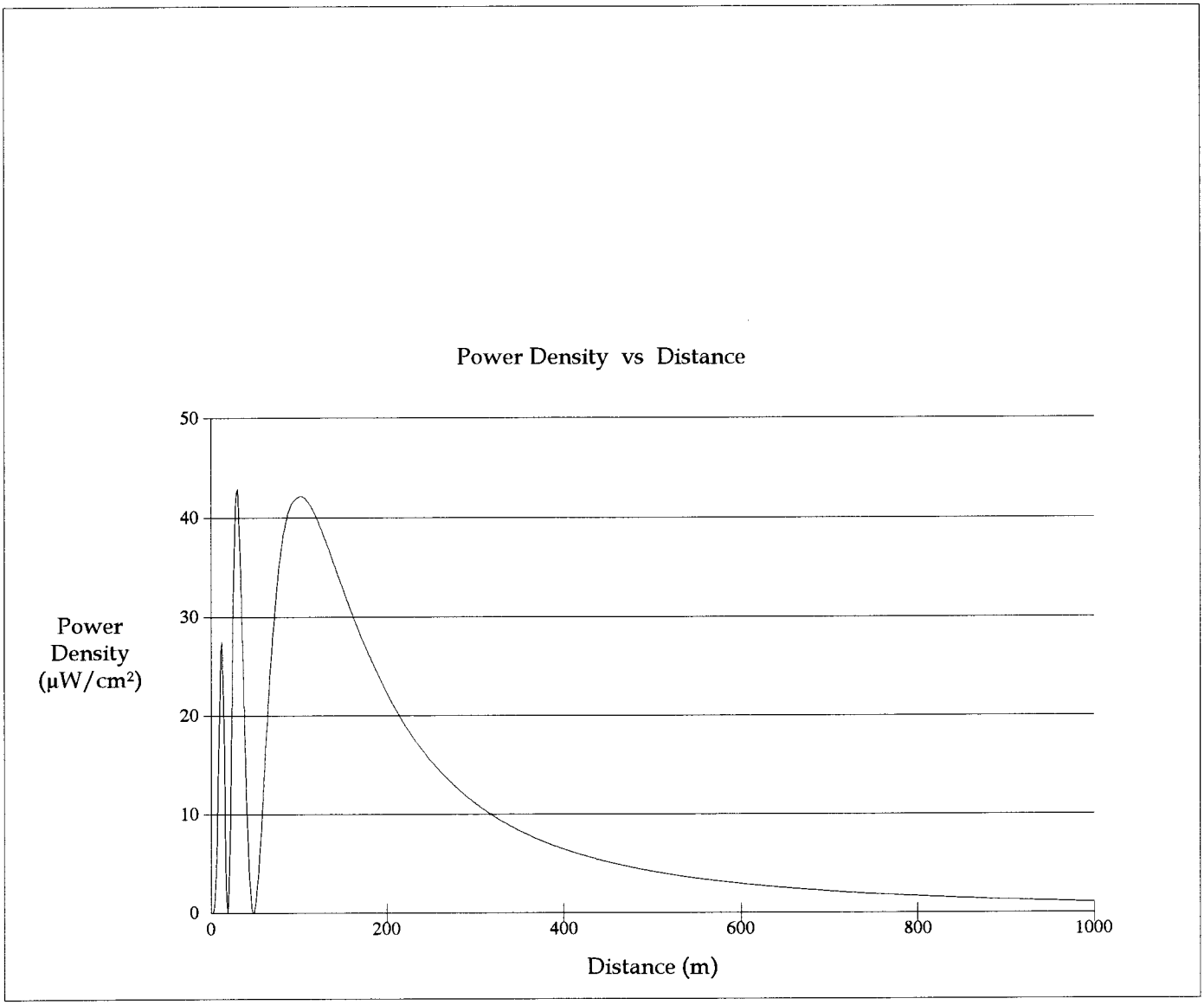


Ground-Level NIER Analysis **OET FMModel**

KAOX(FM) Kemmerer

Antenna Type:	ERI "rototiller"
Number of Elements:	8
Element Spacing:	1.0 wavelength
Distance:	1000 meters
Horizontal ERP:	100 kW
Vertical ERP:	100 kW
Antenna Height:	38 meters AGL

Maximum Power Density is 300.3 μW/cm^2 at 10 meters from the antenna structure.



Ground-Level NIER Analysis **OET FMModel**

KDWY(FM) Diamondville

Antenna Type:	SWR FM10/6 HWS
Number of Elements:	6
Element Spacing:	0.5 wavelength
Distance:	1000 meters
Horizontal ERP:	16 kW
Vertical ERP:	16 kW
Antenna Height:	19 meters AGL

Maximum Power Density is 42.9 μW/cm^2 at 30 meters from the antenna structure.