

HATFIELD & DAWSON

CONSULTING ELECTRICAL ENGINEERS  
9500 GREENWOOD AVE. N.  
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151  
FACSIMILE (206) 789-9834  
E-MAIL hatdaw@hatdaw.com

THOMAS M. ECKELS, PE  
STEPHEN S. LOCKWOOD, PE  
DAVID J. PINION, PE  
ERIK C. SWANSON, PE

THOMAS S. GORTON, PE

MAURY L. HATFIELD, PE  
(1942-2009)  
PAUL W. LEONARD, PE  
(1925-2011)

JAMES B. HATFIELD, PE  
BENJAMIN F. DAWSON III, PE  
CONSULTANTS

**Modification of FM Translator K269HA  
Channel 269D at Twin Falls, ID  
To Rebroadcast KTFI(AM) 1270 kHz Twin Falls, ID  
March 2019**

**Allocation Study**

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

***K267AE Jerome***

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel FM translator station K267AE Jerome. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
K267AE 267D	0.01 km	0.250 kW	140.9 dBu Free Space	180.9 dBu	0.1 meters Free Space

(K269HA and K267AE will be located on the same structure. A distance of 0.01 km is used in this calculation in order to avoid a divide-by-zero error.)

The 140.9 dBu contour extends just 0.1 meters from the translator antenna and does not reach ground level. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to K267AE.

***KYUN 271C3 Twin Falls***

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KYUN 271C3 Twin Falls. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

<b>Protected Station</b>	<b>Distance &amp; Bearing to Proposal</b>	<b>Station ERP and HAAT on that azimuth</b>	<b>Station Field Strength at Proposal</b>	<b>Corresponding Translator Interfering Contour</b>	<b>Distance to Translator Interfering Contour</b>
KYUN 271C3	0.36 km 150 deg True	5.2 kW 223 meters	123.0 dBu Free Space	163.0 dBu	0.8 meters Free Space

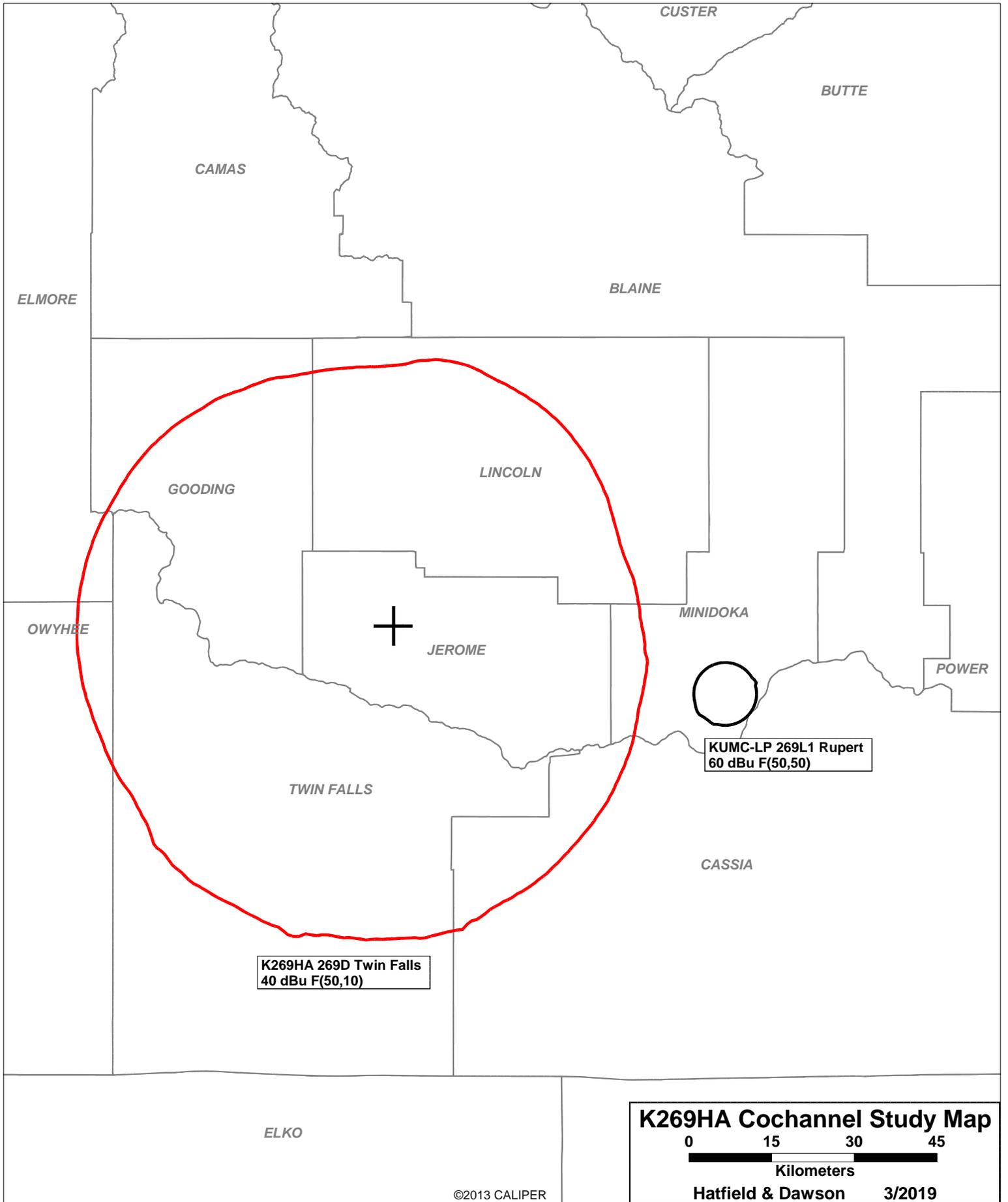
The 163 dBu contour extends just 0.8 meters from the translator antenna and does not reach ground level. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KYUN.

```

=====
SEARCH PARAMETERS                               FM Database Date: 190301
Channel: 269A   101.7 MHz                       Page 1
Latitude:  42 43 44
Longitude: 114 24 56
Safety Zone: 50 km
Job Title: K269HA FLAT TOP BUTTE
    
```

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K266BJ LIC	BURLEY ID	BLFT-40218AGB	266D 101.1	0.023 0.0	42-26-08 113-37-24	116.4	72.74 0.00	0 TRANS
K267AE LIC	JEROME ID	BLFT-70918AA Y	267D 101.3	0.250 236.0	42-43-44 114-24-56	0.0	0.00 0.00	0 TRANS
KCVI LIC	BLACKFOOT ID	BMLH-30825ANH	268C 101.5	100.000 461.0	43-30-03 112-39-43	58.3	166.51 1.51	165 CLOSE
KUMC-LP LIC	RUPERT ID	BLL-90629AAG	269L1 101.7	0.100 24.1	42-37-04 113-40-41	101.3	61.70 -5.30	67 SHORT
K269HA CP	TWIN FALLS ID	BNPFT-80508ABZ	269D 101.7	0.250 213.0	42-32-37 114-28-13	192.3	21.07 0.00	0 TRANS
KQBL LIC	EMMETT ID	BLH-60923ABU	270C 101.9	52.000 803.0	43-45-18 116-05-51	310.5	177.93 12.93	165 CLEAR
KYUN RSV	KIMBERLY ID	-	271C2 102.1	0.000 0.0	42-47-19 114-12-13	68.9	18.58 -36.42	55 SHORT
KYUN LIC	TWIN FALLS ID	BLH-70514ABY	271C3 102.1	5.200 220.0	42-43-54 114-25-04	329.6	0.36 -41.64	42 SHORT

==== END OF FM SPACING STUDY FOR CHANNEL 269 =====



K269HA 269D Twin Falls  
40 dBu F(50,10)

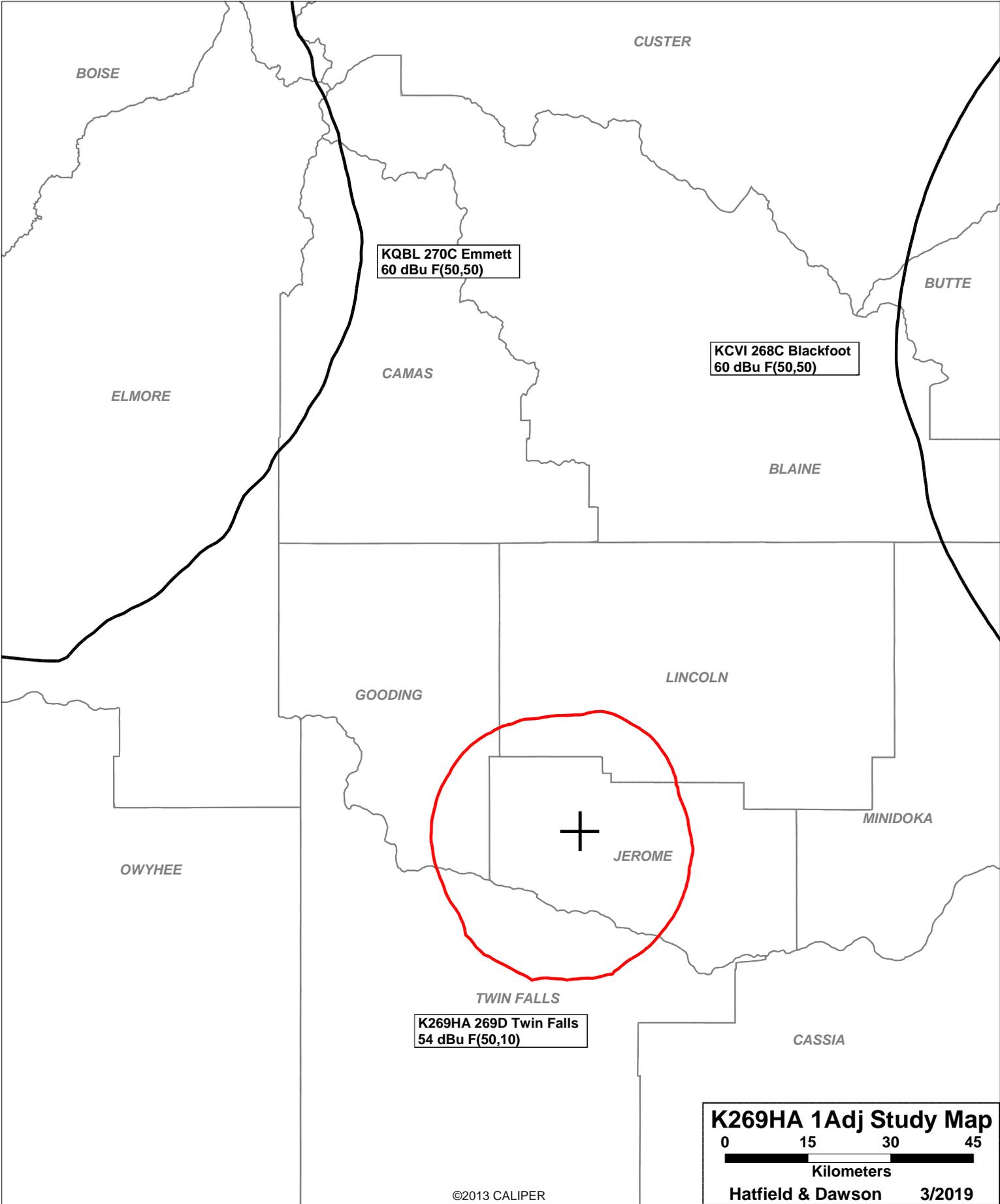
KUMC-LP 269L1 Rupert  
60 dBu F(50,50)

**K269HA Cochannel Study Map**

0 15 30 45

Kilometers

Hatfield & Dawson 3/2019



**K269HA 1Adj Study Map**

0 15 30 45  
Kilometers

Hatfield & Dawson 3/2019

## Facilities Proposed

The proposed operation will be on Channel 269D (101.7 MHz) with an effective radiated power of 250 watts. Operation is proposed with a 3-element circularly-polarized omni-directional antenna. The antenna will be mounted on an existing tower on Flat Top Butte, with FCC Antenna Structure Registration Number 1041029.

Combined operation is proposed for K262DD, K269HA and K273DG via a common antenna system.

## RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "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. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

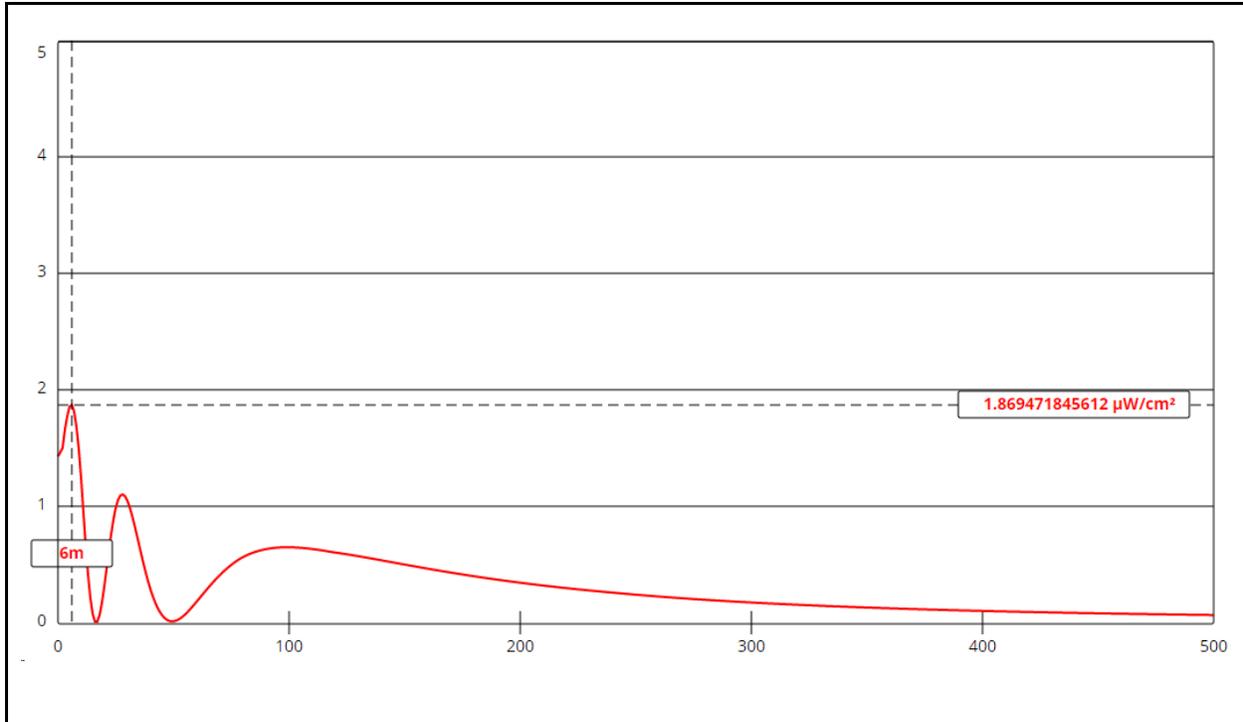
*D* is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the element pattern designated in the Commission's FMModel software for the Bext TFC2K-3 antenna proposed for use. The highest calculated ground level power density occurs at a distance of 6 meters from the base of the antenna support structure. At this point the power density is calculated to be 1.9  $\mu W/cm^2$ , which is 1% of 200  $\mu W/cm^2$  (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicant's proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

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 exposure in excess of FCC guidelines.



### Ground-Level RF Exposure

OET FMModel

#### K269HA Twin Falls

Antenna Type: Bext TFC2K-3 (Type 2)

No. of Elements: 3

Element Spacing: 0.85 wavelength

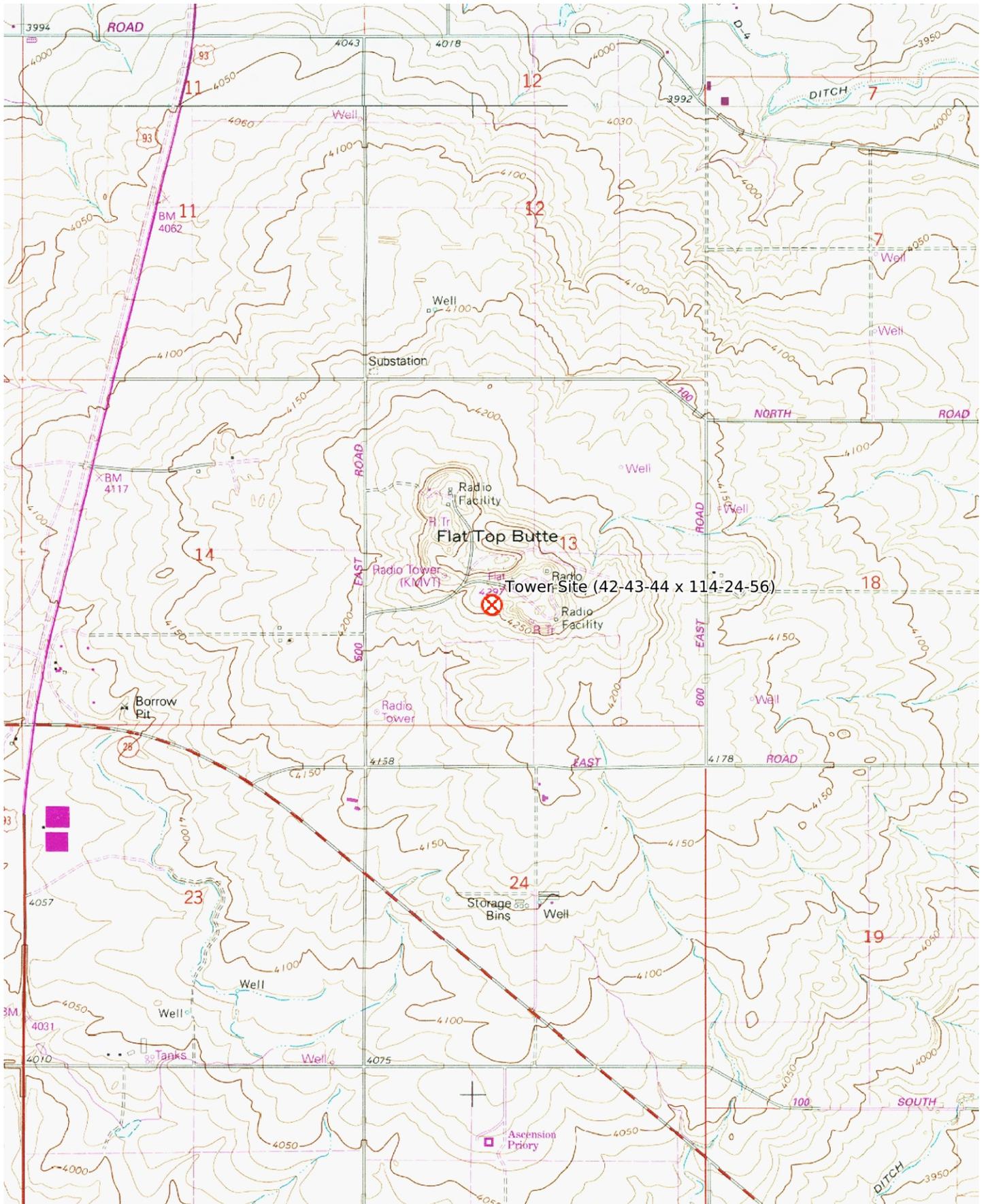
Distance: 500 meters

Horizontal ERP: 250 watts

Vertical ERP: 250 watts

Antenna Height: 23 meters AGL

Maximum Calculated Power Density is 1.9  $\mu\text{W}/\text{cm}^2$  at 6 meters from the antenna structure.



Mercator Projection  
 NAD27 Conus  
 USNG Zone 11TQH  
 CalTopo

